

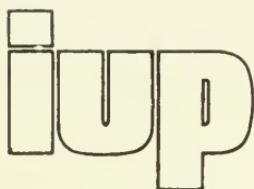
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Graduate School Catalog

1983-1985



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IUP RESERVES THE RIGHT TO REPEAL, CHANGE, OR AMEND THE POLICIES, REGULATIONS, AND COURSES CONTAINED IN THIS CATALOG AT ANY TIME. TUITION AND FEES ARE ALSO SUBJECT TO CHANGE.

PRESS DATE: MAY, 1983

**Indiana University
of Pennsylvania
1983-1985**

**The Graduate School
Catalog**

INDIANA, PENNSYLVANIA 15705

TELEPHONE: (412) 357-2222



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THE GRADUATE SCHOOL CALENDAR

SUMMER SESSION 1983

- April 1 Students who plan to take graduate work during the 1983 Summer Sessions must have an application for graduate study approved on or before this date.
- June 1 Final date to submit thesis proposal to the School Dean in order to complete requirements for the degree in Summer 1983.
- June 1 Prospective August 1983 graduates must have filed an application for graduation.
- July 1 Final date for presentation of completed thesis to major professor in order to complete requirements for the degree in the Summer 1983.
- August 1 Completed and corrected thesis must be on file with the School Dean for Summer 1983 degree.

FALL SEMESTER 1983

- July 1 Students who plan to take graduate work during the fall semester must have an application for graduate study approved on or before this date.
- October 1 Final date to submit thesis proposal to the School Dean in order to complete requirements for the degree in the Fall Semester 1983.
- October 1 Prospective December 1983 graduates must have filed an application for graduation.
- November 1 Final date for presentation of completed thesis to major professor in order to complete requirements for the degree in the Fall Semester 1983.
- December 1 Completed and corrected thesis to be filed with the School Dean for degree in Fall Semester 1983.

SPRING SEMESTER 1984

- November 1 Students who plan to take graduate work during the Spring Semester must have an application for graduate study approved on or before this date.
- March 1 Final date to submit thesis proposal to the School Dean in order to complete requirements for the degree in the Spring Semester 1984.
- March 1 Prospective May 1984 graduates must have filed an application for graduation.
- April 1 Final date for presentation of completed thesis to major professor in order to complete requirements for the degree in the Spring 1984.
- May 1 Completed and corrected thesis must be on file with the School Dean for degree in Spring Semester.

SUMMER SESSION 1984

Dates for 1984 Summer Session have not been set as of this printing. Please contact The Graduate School for further information.

- April 1 Students who plan to take graduate work during 1984 Summer Sessions must have an application for graduate study approved on or before this date.
- June 1 Final date to submit thesis proposal to the School Dean in order to complete requirements for the degree in Summer 1984
- June 1 Prospective August 1984 graduates must have filed an application for graduation.
- July 1 Final date for presentation of completed thesis to major professor in order to complete requirements for the degree in the Summer 1984.
- August 1 Completed and corrected thesis must be on file with the School Dean for Summer 1984 degree.

FALL SEMESTER 1984

- July 1 Students who plan to take graduate work during the Fall Semester must have an application for graduate study approved on or before this date.
- October 1 Final date to submit thesis proposal to the School Dean in order to complete requirements for the degree in the Fall Semester 1984.

- October 1 Prospective December 1984 graduates must have filed an application for graduation.
- November 1 Final date for presentation of completed thesis to major professor in order to complete requirements for the degree in the Fall Semester 1984.
- December 1 Completed and corrected thesis to be filed with the School Dean for degree in Fall Semester 1984.

SPRING SEMESTER 1985

- November 1 Students who plan to take graduate work during the Spring Semester must have an application for graduate study approved on or before this date.
- March 1 Final date to submit thesis proposal to the School Dean in order to complete requirements for the degree in the Spring Semester 1985.
- March 1 Prospective May 1985 graduates must have filed an application for graduation.
- April 1 Final date for presentation of completed thesis to major professor in order to complete requirements for the degree in the Spring 1985.
- May 1 Completed and corrected thesis must be on file with the School Dean for degree in Spring Semester.

SUMMER SESSION 1985

Dates for 1985 Summer Session have not been set as of this printing. Please contact The Graduate School for further information.

- April 1 Students who plan to take graduate work during 1985 Summer Sessions must have an application for graduate study approved on or before this date.
- June 1 Final date to submit thesis proposal to the School Dean in order to complete requirements for the degree in Summer 1985.
- June 1 Prospective August 1985 graduates must have filed an application for graduation.
- July 1 Final date for presentation of completed thesis to major professor in order to complete requirements for the degree in the Summer 1985.
- August 1 Completed and corrected thesis must be on file with the School Dean for Summer 1985 degree.

TUITION AND FEES

Full-Time Tuition

\$740 for 9 to 15 semester hours (s.h.), then \$82 for each additional s.h.

Part-Time Tuition

\$82 per semester hour (s.h.) for less than 9 s.h.

Summer Session Tuition

Per semester hour (s.h.)	\$82.00
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Application Fee (Must accompany application form)	\$10.00
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Activity Fee — Semester Full-Time Students

(9 semester hours or more)	\$22.00
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Semester Part-Time Students	
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(8 semester hours or less)	\$ 8.00
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Main Summer Session —

All Graduate Students	\$16.00
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Pre and Post Summer Session —

All Graduate Students	\$ 7.00
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Health Fee — Semester Full-Time	\$30.00
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Pre Session.....	\$ 6.00
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Main Session	\$12.00
--------------------	---------

Post Session	\$ 6.00
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Late Fee.....	\$10.00/day up to \$20.00
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Applied Music Fee per private instruction	\$50.00
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Auditors Fee (Same as Tuition)

Graduation Fee:.....	\$20.00
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Master's Cap, Hood and Gown Fee	Nominal
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All fees are subject to change without notice.

Grades and transcripts may be withheld by IUP if a student is delinquent in paying any bill owed the University. Payment of the bill or establishment of a payment plan satisfactory to the University will be required for release of grades and/or transcripts.

University Refund Policy

The University must engage its faculty, assign Residence Hall space and arrange for meal contracts in advance of each term in accordance with the number of students who expressed their intent to be enrolled. When students withdraw from the University, they create vacancies which cannot be filled and financial commitments for salaries and services by the University must be honored. The refund policy at IUP applies to all students enrolled in credit producing programs at the University either full-time or part-time.

Graduate students withdrawing from the University must process such withdrawal through the Graduate School Office. The official withdrawal date will be established by the Graduate School Office.

Students totally withdrawing from courses, Residence Halls and/or meal contracts upon receiving approval from the Graduate School will forfeit a portion of the semester charges in accordance with the following schedule.

From the first full day of semester classes to and including the fourteenth (14th) calendar day following the start of classes Forfeit twenty (20) percent of the student's total semester charges.

From the fifteenth (15th) calendar day following the start of classes to and including the twenty-first (21st) calendar day following the start of classes Forfeit thirty (30) percent of the student's total semester charges.

From the twenty-second (22nd) calendar day to and including the twenty-eighth (28th) calendar day following the start of classes Forfeit forty (40) percent of the student's total semester charges.

From the twenty-ninth (29th) calendar day to and including the thirty-fifth (35th) calendar day following the start of classes Forfeit fifty (50) percent of the student's total semester charges.

After the thirty-fifth (35th) calendar day following the start of classes No refund will be granted and all semester fees forfeited.

The start of days defined as the first day of classes to begin as scheduled on the University calendar.

Refunds for students receiving financial assistance from scholarships and/or grants will be returned to the source of aid in an appropriate proportion, except in those cases in which a full refund to the source is required.

Refunds made during summer sessions will be governed by the following schedule. Students totally withdrawing from courses, resident halls and/or meal contracts upon receiving approval from the dean's office will forfeit a portion of the total session charges in accordance with the following schedule:

From the first day of arena registration through the fourth (4th) calendar day following arena registration for Pre, Main, and Post Sessions. Forfeit fifty (50) percent of the student's total session charges.

After the fourth (4th) calendar day No refunds will be granted and all semester fees forfeited.

Once a student registers for a course, the maximum refund will be 50 percent regardless of when the class(es) begin.

No refunds will be granted unless formal withdrawal procedure has been initiated by the student or his/her family within 30 days of the date of withdrawal. Written and dated notice is required.

No refunds will be granted for students suspended or expelled by the University.

The School Dean may request exceptions of these policies and grant pro-rated refunds when circumstances justify it. (EXAMPLE: death, medical reasons or military obligation.)

DISCRETE COURSE WITHDRAWAL

No refunds will be made to full-time students who reduce class load after classes have started.

Discrete course withdrawal is defined as a reduction in class load but not total withdrawal from the University. Example: A student who registers for two courses and then withdraws from one class but continues with the other class.

Part-time students (graduate students who register for less than nine credit hours) will forfeit a portion of the credit hour fee in accordance with the following schedule:

Calendar Class Day of Individual Course Withdrawal	Percentage of Student's Instructional Fee to be Forfeited
1 through 35	50%
36 and Beyond	100% (no refund)

Refunds will be granted only for the instructional fee. No refund will be granted to students who add or drop a like number of credit hours.

Refunds will be granted students for individual course withdrawals during summer sessions under the same basis as outlined on page 9.

WITHDRAWAL FROM UNIVERSITY SERVICES

Students who withdraw from the University Students Services (Residence Hall, meal contracts, etc.), but do not totally withdraw from the University will not be granted a refund.

IUP

Location — IUP, the state-owned university in the Commonwealth of Pennsylvania's Higher Education System, is located in Indiana, Pennsylvania, a community of 26,000 about 55 miles northeast of Pittsburgh and 30 miles north of Johnstown. Situated in the Allegheny foothills, Indiana has a moderate climate conducive to study the year round and a wide variety of historical, cultural, and recreational facilities both immediately at hand and in neighboring population centers.

Library — The University Library Complex (Patrick J. Stapleton, Jr. Library and Rhodes R. Stabley Library) provides excellent facilities for graduate work with librarians readily available for assisting with specialized reference work. The Library is an officially designated Federal Depository. The holdings in Patrick J. Stapleton, Jr. Library include over 520,000 volumes of books, 1,500,000 units of microform, 3,800 indexed periodical subscriptions, and the government documents collection.

The Rhodes R. Stabley Library houses 50,000 units of media material and software together with facilities for listening and viewing. These services consist of the development of instructional systems such as student response, and personal self-instructional materials. In addition, the services provide photographic, sound recording and reproduction, design and production of conventional instructional materials: procurement, inventory, and maintenance of University multi-media equipment; developing and maintaining a 16mm film library.

Media equipment and hardware are housed in the lower floor of Davis Hall.

Graduate students and faculty conducting research may apply for interlibrary loans to supplement the library's holdings. Individual study carrels are available for graduate students conducting library research.

STAPLETON/STABLEY LIBRARY HOURS

Monday thru Thursday	7:45 a.m. - 10:30 p.m.
Friday	7:45 a.m. - 9:30 p.m.
Saturday	7:45 a.m. - 5:00 p.m.
Sunday	2:00 p.m. - 10:30 p.m.

Schedules for summer sessions and vacation periods are posted. The telephone number the Main Desk is 357-2340.

The Computer Center — The Computer Center, established in July, 1963, provides computational support for undergraduate and graduate courses, faculty and student research, and the administrative requirements of the University. The computing capacity of the Center is provided by a large-scale disk oriented central processor which supports both time-sharing and batch processing services for the university community. Typewriter terminals, located both in the Computer Center and in various locations on campus, permit the use of the computer on a time-sharing basis. Keypunching facilities and a full complement of tabulating equipment are available in the Computer Center for student use. Remote job entry stations are located in the Computer Science department and the School of Business, along with a large number of time-sharing terminals. Aid in the use of the computer and facilities may be obtained from user assistants on duty at the Computer Center, and from the Center's professional staff.

IUP's Computer Center plays an active part in the daily functioning of the University. It is the principal laboratory facility for computer-oriented courses and is used as a teaching aid in many classes involving statistical and numerical analyses and computer simulations. In addition, over 80 organizations outside the University make extensive use of IUP's computing facilities. The staff at the Center is actively involved in continuing work aimed at making computers a more effective and readily accessible tool for both the academic and administrative segments of the university community.

Testing Services — Testing programs at IUP are administered through the Academic Services and Testing Center. Among the national testing programs offered, the following are of particular interest to potential graduate students.

The **Graduate Record Examination (GRE)** is administered on nationally-established dates five times each year. In the Saturday morning sessions the aptitude examinations are offered; the advanced examinations (specializations) are offered in the afternoon sessions. Information and registration booklets are available from the Graduate School or from the Testing Center. Registration forms must be sent directly to ETS in Princeton, New Jersey.

The **Miller Analogies Test (MAT)** is administered by the Testing Center on a frequent schedule — usually monthly on a weekday afternoon. To register, contact the Testing Center (412-357-3050). All Graduate School applicants with a GPA of below 2.6 must take the MAT.

The **Graduate Management Admission Test (GMAT)** is administered on nationally-established dates. IUP is a regular center for some dates and can be a special center for other dates if 15 registrations are submitted to the Testing Center before the "special requests" deadline. Registrations for regular center dates, as listed in the GMAT booklet, are submitted directly to ETS. Information-registration booklets are available from the School of Business-MBA Coordinator or from the Testing Center.

The **National Teacher Examination (NTE)** is administered on three nationally-established dates. On two dates the common examinations are offered; on two other dates the area examinations (specializations) are

offered. It is used generally by participating school systems for qualification and/or selection of instructional staff. Use of the NTE at IUP is limited to the area examination for guidance counselor, which is used in admission to the IUP doctoral program in counselor education.

Information on graduate and professional school exams other than those used for IUP Graduate School programs is available through the Testing Center. Law School Admission Test (LSAT) information is also available in the office of the School of Humanities and Social Sciences. Medical College Admission Test (MCAT) information is available through the Dean of the School of Natural Sciences and Mathematics.

Arrangements can be made by advance contact for administration of tests adapted to visual, auditory, or physical handicaps.

The Testing Center is a service operation for the administration of tests and neither makes testing requirements nor offers interpretation of testing results. Commercial "How to Prepare for ..." materials are available in the Co-op Store and other local bookstores. Questions concerning test requirements and desirable scores should be addressed to The Graduate School. Questions concerning specific registration matters and the test agency information-registration materials may be directed to the Academic Services and Testing Center, G30 Sutton Hall (357-3050).

Financial Aid — The Financial Aid Office, located at 308 Pratt Hall, offers financial information and counseling to all students attending IUP. The types of financial assistance offered by the Financial Aid Office include student employment, loans, and scholarships. In most cases the Pennsylvania State Grant Application is used to determine eligibility for these programs.

In order to be considered for financial aid administered through the University, a Pennsylvania State Grant Application must be submitted to Harrisburg, Pennsylvania. Students attending IUP on at least a half-time basis (5 credit hours or more) will be awarded assistance based on demonstrated financial need. To be eligible for continued funding, applicants must remain in satisfactory academic standing at the University and show continued academic progress.

Payment of financial aid awards is done on a semester basis. All financial aid, with the exception of the private scholarships, work-study, and guaranteed student loans are credited to the student's bill in advance.

The cost of attending IUP and the University's refund policy are listed in this catalog. Please refer to the index for further information.

Career Services — The Office of Career Services, 302 Pratt Hall, is open to all IUP graduate students and alumni. Students and classes are invited to use the facilities and professional staff for assistance in career planning and development.

The primary functions of the Career Services program are: providing vocational planning assistance through conferences with professional career counselors; assembling a set of credentials for each student who submits the materials and making copies of these credentials available to prospective employers; cooperating with the faculty of the University to increase the overall awareness of current employment opportunities and trends; arranging for

campus interviews; publicizing career information, especially regarding campus interviewing opportunities; preparing vacancy files and a current vacancy list which are made available to eligible candidates; maintaining a career information library; arranging for occupational information through meetings with representatives from education, business, industry and government; conducting follow-up studies of graduates and assembling supply and demand data.

Each student is urged to obtain a packet of information in the Career Services Office and complete all the forms necessary to establish a credential file for employment purposes.



THE GRADUATE SCHOOL AT IUP

GENERAL INFORMATION

Graduate work was inaugurated at IUP in September, 1957.

Master of Arts, Master of Science, Master of Business Administration, Master of Education, Doctor of Education, and Doctor of Philosophy degrees are currently available. Non-degree programs leading to certification in various teaching fields are also available.

In all graduate programs the objectives are (1) to encourage excellence and scholarship, (2) to provide depth in the student's special field, and (3) to stimulate enthusiasm for continued cultural and professional growth on the part of the student.

The Graduate School staff is assisted in its daily functioning by a) the Graduate Council, a standing committee of the University Senate concerned with graduate program curricular and policy matters; b) the Graduate Student Assembly, an elected graduate student body representative of all campus academic departments offering graduate programs, and c) the chairpersons and graduate studies coordinators of departments offering graduate course work.

In addition to the degree and certification programs referred to above, IUP's Graduate School also maintains liaison with other graduate institutions in Pennsylvania. Students should contact The Graduate School for additional information.

ADMISSION

Admission to The Graduate School is required of all students who wish to take graduate courses for graduate credit. Each student applying for admission, either as an applicant for a graduate degree program or as an applicant for a non-degree program, must file with The Graduate School an application for admission and such other supporting documents as the school may specify. An Admissions Packet is supplied by the Graduate Office upon request. As a general rule application materials must be on file in the Graduate Office at least one month prior to the beginning of the semester or term in which the applicant plans to begin graduate work. Some exceptions to these deadlines exist; please refer to the Graduate Calendar on pages 5-7 of this catalog for specific program dates.

Requirements for Admission

1. An applicant must have a bachelor's degree from a college or university accredited by the Middle States Association of Colleges and Secondary Schools or an equivalent regional accrediting agency.
2. The applicant's undergraduate transcript (or transcripts collectively) must show a minimum cumulative quality point average of 2.6 on a 4.0 maximum scale. Occasionally, additional evidence of academic ability is required.
3. Graduate Record Examination (GRE) scores must be submitted prior to admission or during the student's first semester of course work by all students except MBA and M.S. in Business program applicants; the latter must submit General Management Admission Test (GMAT) scores. See page 12 for further detail about these examinations.
4. Most applicants requesting admission to programs leading to an MEd degree are required to have a Provisional Pennsylvania Teachers Certificate or its equivalent; all MEd degree applicants should be sure to inquire at their program's sponsoring department. MEd applicants who do not already have such certification where required must complete a planned program leading to certification **prior** to applying for MEd degree candidacy at IUP.

Graduate School admission means that a student may program and register for graduate courses. Admission does not guarantee subsequent admission to candidacy for a degree, nor does it guarantee successful completion of requirements for a degree.

Admission Procedures

1. Each applicant must file with the Dean of The Graduate School a completed application form. Applications along with forms pertaining to items 2 and 3 below are included in the Admissions Packet.

2. The application must be accompanied by one copy of an official transcript from each graduate and undergraduate institution attended, including IUP if the applicant is an IUP alumnus/alumna.
3. Each applicant must submit statements of recommendation from three individuals who are familiar with his/her backgrounds. At least two of the individuals must be persons familiar with the applicant's academic background.
4. All applicants must submit Graduate Record Examination (GRE) scores except MBA and M.S. in Business degree applicants, who must submit Graduate Management Admission Test (GMAT) scores. Information about both is contained in the Admissions Packet.
5. An application fee in the amount of \$10, non-refundable, must accompany the application. Please pay by check and make the check payable to: IUP.

Admission Classifications

Applicants for admission to The Graduate School are notified of their admission status by The Graduate School Dean prior to the beginning of the term of planned study. Admission classifications are as follows:

1. **Pre-Candidacy Status.** Given to an applicant who plans to work toward a graduate degree and whose application file with The Graduate School is both complete and satisfactory. The pre-candidacy student may program, under departmental guidance, 6 to 12 graduate hours toward the degree being sought. Pre-Candidacy Status does not guarantee subsequent admission to candidacy.
2. **Special Graduate Standing.** Granted to applicants who indicate they do not plan to work toward a graduate degree but who wish to take graduate courses for which they are qualified. Applicants granted this standing who later wish to work toward a graduate degree must request reclassification by The Graduate School. Credits earned by a student having Special Graduate Standing may be applied to an IUP degree after the reclassified student has been awarded degree candidacy, provided the credits are deemed appropriate to the degree by the program's sponsoring department.
3. **Admission Denied.** Applicants denied admission to The Graduate School will receive a letter from the Graduate Dean indicating the reason for the denial.

Graduate Record and Other Examinations

All graduate school applicants must take the APTITUDE section of the Graduate Record Examination. The following departments require that the Examination's ADVANCED section must also be taken for the degree or certification programs indicated:

- Biology (MS and MEd)
- Educational Psychology (MEd and School Psychology programs)
- Elementary Education (EdD)
- English (PhD)
- Foreign Languages (German, MEd; Spanish; MA and MEd)
- Music (MA, MEd)
- Psychology (MA)

Under certain conditions IUP applicants may be required to submit MAT (Miller Analogies Test) scores. Both Graduate Record and Miller Analogies examinations are administered by IUP's Testing Center on published dates; specific information about test availability can be obtained from the Center's director. Applicants taking such examinations, whether at IUP or elsewhere, should request that their scores be sent to: Dean, The Graduate School, IUP, Indiana, Pa. 15705.

See page 12 for information on tests offered at IUP.

Foreign Student Applicants

In addition to following the general procedures for admission to The Graduate School, foreign students must present evidence of fluency in English. Applicants whose native language is not English are required to take the Test of English as a Foreign Language (TOEFL)*. The Graduate School will not process applications from such students until satisfactory TOEFL scores are filed with the dean of the Graduate School.

Foreign applicants must also present evidence to The Graduate School of having financial resources sufficient to meet the cost of living in Indiana, Pennsylvania; the cost of travel to and from the student's native country; and the cost of graduate education at IUP. Such evidence should be sent directly to: Dean, The Graduate School, IUP, Indiana, Pennsylvania 15705, U.S.A. The Graduate School gives notification to the University's Foreign Student Adviser of foreign student applications received; the Foreign Student Adviser mails to the prospective foreign student information on housing, arrival dates, and other general information about the University. Applicants who have questions about legal or other matters such as the issuance of certificates of eligibility (1-20) and the like should address those questions directly to: IUP Foreign Student Adviser, IUP, Indiana, Pennsylvania 15705.

Foreign Student Candidacy Test — All foreign students will be required to take the GRE if they have studied in an American college or university. If a foreign student has not studied in an American college or university, the test required for candidacy will be the TOEFL. Business students in MBA or MS programs must take the GMAT regardless of foreign status.

*Students desiring direct information about this examination should write to: TOEFL, Educational Testing Service, Princeton, New Jersey 08540, U.S.A.

PROGRAMMING AND REGISTRATION

Advisement

After a student has been admitted to The Graduate School, he/she should consult the department chairperson or coordinator of graduate studies in his/her intended field of study about a program of courses. If the student is a special graduate student, consultation should be with the Dean of The Graduate School. Advisement before course registration is required of all students enrolling for graduate classes for the first time. In addition, many departments feel strongly that their students should be advised well before registration for each semester or summer term; these departments are identified in each semester's (or summer session's) schedule of course offerings. The student should carefully check such schedules about advisement responsibilities, as well as course offerings, before registration.

Pre-registration

Prior to each semester or summer session enrolled graduate students receive pre-registration materials and accompanying instructions from The Graduate School. Similar material is sent to prospective new students in response to their inquiries. The student should return all completed registration forms to the Graduate Office by the date published in the graduate schedule.

Final Registration

After the student has returned the registration materials to The Graduate School, he/she will receive from the Business Office a bill for tuition and fees. Bills must be paid before the student attends classes. Arrangements for housing and meals when necessary, parking, identification-card receipt can be made at the registration location for "walk-in" students. Mail-registered students should make such arrangements independently with offices involved.

"Walk-in" registration is usually held during the final hours of registration for students who have not pre-registered. Walk-in students may encounter lengthy delays in their registration processing and other inconveniences. It is unquestionably to the student's advantage to be processed with the majority pre-registration group.

APPLICANTS FOR SPECIALIST CERTIFICATION PROGRAMS

IUP offers specialist certification programs in Communications Media, Counselor Education, Public School Psychology, and Reading. Applicants for

these programs should follow the same procedures for admission, programming and registration as described in this catalog. Applicants should check program descriptions in the catalog for special program requirements.

The specialist certificate program in Communications Media is a pre-master's level program. Applicants must hold a permanent college certificate for elementary or secondary education to be accepted.

The supervisor of Guidance Services certification program sponsored by the Counselor Education Department is a post-master's program. Applicants must have a master's degree and Commonwealth of Pennsylvania certification as an elementary or secondary school counselor or its equivalent.

The Public School Psychology certification program is a post-master's-degree program designed for those individuals who are seeking certification as public school psychologists in the Commonwealth of Pennsylvania. Applicants for admission must have a master's degree and an instructional or specialist certificate from an accredited institution.

The Reading program is designed for those individuals who are seeking certification as 1) Reading Specialist or 2) Reading Supervisor. The student who wishes to obtain Reading Specialist certification and who does not desire an MEd degree may do so by formulating a program of studies with the departmental Graduate Reading Program Coordinator contingent upon admission to The Graduate School. Applicants who are seeking certification as Reading Supervisors must complete all requirements for the MEd in Reading, be eligible for a Level III certificate, and present a minimum of 19 graduate semester hours selected from the Reading Supervisor program of studies.

FINANCIAL AID

Assistantships

IUP offers both half-time (20 hours per week paying a stipend of \$2,705 for two semesters) and quarter-time (10 hours per week paying a stipend of \$1,325.50 for two semesters) teaching and research assistantships to full-time graduate students. Half-time assistantships provide a full tuition waiver for one calendar year; quarter-time assistantships carry a one-half tuition waiver for a calendar year. Duties include supervised teaching, research, on university service activities under the direction of a graduate faculty member. The deadline for applying for a September assistantship is March 15 of the preceding year. Applications and further information are available at The Graduate School.

Scholarships

Margaret Flegal Harte Scholarships

Two \$450 scholarships are awarded yearly to needy new full-time graduate students. All new Graduate School applicants except for those who receive

other IUP scholarships are considered for the Margaret Flegal Harte Scholarships based on academic records and financial need. No application forms for the scholarships are required; the Pennsylvania State Grant Application submitted to Harrisburg, Pennsylvania, serves as the need analysis document for need assessment.

Employment Programs

A. Federal College Work-Study Program (CWSP)

The College Work-Study Program provides an opportunity for graduate students to earn money to help finance educational expenses. Students may be employed on campus for up to 20 hours per week when classes are in session and 40 hours per week during vacation periods. Work-study jobs not only help to defray the cost of education but can add valuable practical experience accompanying the student's graduate education. Eligibility is based on financial need as determined by an analysis of the Pennsylvania State Grant Application submitted to Harrisburg, Pennsylvania. The form is available in the Financial Aid Office.

B. State University Employment Program (UE)

The State University Employment Program also provides an opportunity for students to work as an accompaniment to their studies program. Maximum UE hours are 20 hours per week when classes are in session and 40 hours per week during vacation periods. No application is necessary.

C. Special Funded Grant Employment opportunities are also available to graduate students from time to time. Interested students should check with the Graduate Office.

Loan Programs

A. National Direct Student Loan (NDSL)

The NDSL Program provides loans up to \$2,000 per academic year to eligible graduate students. Eligibility is based on financial need as determined by an analysis of the Pennsylvania State Grant Application submitted to Harrisburg, Pennsylvania. The forms are available in the Financial Aid Office.

The interest rate for NDSL is five percent and the repayment period starts six months after termination of the student's education. Information concerning cancellation privileges is available in the Financial Aid Office.

B. Guaranteed Student Loan Program (GSL)

The Guaranteed Student Loan (GSL) can be obtained from private lending institutions such as banks and credit unions and is administered in conjunction with State and Federal governments. Loans **up to the cost of education** (not to exceed \$5,000 per year) are available for new borrowers at nine percent simple interest with repayment not required to begin until six

months after the termination of the student's education. Borrowers with outstanding Guaranteed Student Loans will continue to repay additional loans at seven percent interest after a nine month grace period. There are no cancellation privileges, but information about deferment provisions is available at the Financial Aid Office. Applications for the GSL are available at any participating institution.

Veterans

IUP is approved to offer training under the various G I. Bills (Public Law 550) and Public Law 894 (disabled veterans). Students who are entitled to training under one of these bills should contact the Veterans' Counselor immediately after being accepted for admission to IUP in order to secure additional instructions. This procedure is necessary so veterans may be included on the monthly payrolls. The Office of the Veterans' Counselor is in Pratt Hall.

INSURANCE

The University provides an opportunity for full-time graduate students to purchase accident and illness insurance. Coverage under the current arrangement is from a given September 1 or the date of planned enrollment, whichever is later, until the following September 1. Included are accident medical expenses up to a maximum of \$1,000; sickness medical expenses up to a maximum of \$1,000; semi-private hospital room and board; certain surgical operations, certain ambulance expenses, nurse expense up to specified limits per day; and other benefits. For an additional premium, maternity expense coverage and benefits for spouse and children are provided.

Foreign students enrolled at IUP must purchase the foregoing health insurance unless they can demonstrate that they already have comparable coverage.

For further detail and/or policy purchases, please contact the Executive Director of Financial Affairs, Administrative Annex, IUP, Indiana, Pa. 15705.

GENERAL GRADUATE SCHOOL PROCEDURES AND REGULATIONS

The graduate student is expected to assume full responsibility for knowing graduate program procedures and regulations. General Graduate School requirements are set forth in this catalog; a description of special departmental degree requirements is available at each department sponsoring the specific degree or certification program. Requests for exceptions to policy are given consideration when unique circumstances exist; questions concerning the proper routing of such requests should be addressed to the Graduate School dean. In addition to knowing policy and procedure, all admitted graduate students should also be familiar with the document "Graduate Student Rights and Responsibilities" (see next page), a copy of which can be obtained at the Graduate Office.

Program Changes

To insure their quality and relevance, graduate programs at IUP are subject to constant review and change by duly appointed and responsible University groups. Because of this, the University recognizes that provision must be made to prevent hardship to students already enrolled in programs if changes later occur in specific or general program requirements. Students affected by changes in programs, policies and regulations are therefore given the option of following those requirements in effect when the student was first admitted to the program or those in effect at the time of expected graduation. The student cannot, of course, combine chosen elements of the two. Should a question of rule interpretation arise with respect to changes, the student, the student's adviser, or both should petition The Graduate School Dean for a decision about which requirements apply.

Graduate Assistantships

Graduate assistantships are awarded at IUP to a limited number of full-time graduate students usually who have been admitted to graduate degree programs. There is no guarantee of renewal, although departmental recommendations for renewal are considered when such occur. Assistantships carry a stipend and a tuition waiver for graduate courses taken, but the assistantship is looked upon as an encouragement and/or reward for academic excellence rather than a means to relieve financial need.

Assistantships are of two types; teaching and research. In both cases the duties performed (20 service hours per week in the typical appointment) are related to academic and/or professional experiences either in or closely related to the student's degree discipline and provide an experiential extension of his/her curriculum development. Duties are assigned through the Dean by the chairperson or graduate studies coordinator of the department of assignment.

Graduate Student Rights and Responsibilities

Upon admission to The Graduate School, the student assumes responsibility for knowing program requirements and following established procedures in relation to academic advisement, course selection and registering, the payment of fees, the processing of withdrawals from class (if any), the meeting of residency requirements, applying for degree candidacy, and applying for and meeting all specific requirements for graduation. Conversely, he/she has the right to expect that all program requirements will be made clear, that all course requirements — including grading criteria and procedures — will be made known early in the course, and that course grades will represent the instructor's professional and objective evaluation of performance. He/she has the right to instruction which encourages the free and open discussion of ideas, and which respects reasonable student needs and aspirations. It is the student's responsibility to contribute to that classroom decorum and atmosphere which encourages maximum learning. Finally, the student understands that a departmental evaluation of academic progress and professional potential will be filed and that such an evaluation is available upon request.

The Graduate Student Assembly

Each IUP department offering a graduate program is required to establish a graduate studies committee and is urged, but not required, to form an association for its graduate students. On a University-wide basis, the Graduate Student Assembly (GSA) is the graduate students' organization. GSA is composed of two elected representatives (and frequently an alternate) elected by the full-time and part-time graduate students of the department. GSA functions to serve all graduate students by having voting representation on the Graduate Council and in the University Senate; by having the right to review Council policies; by having the means to make recommendations about graduate student affairs to the Council and/or to the Graduate Dean; by working to improve the social, intellectual, and cultural life of graduate students; and by participating in the judicial procedure established for graduate students.

Academic Good Standing

IUP graduate students must maintain a minimum of 3.0 (B) cumulative graduate quality point average to be in good standing academically. Students falling below good standing are placed on probation for their succeeding active semester or summer; probationary continuance beyond one semester or summer is permitted only upon receipt of special authorization to this effect from the Graduate Dean. A student must be in good standing to be admitted to degree candidacy and to graduate.



ACADEMIC CREDITS AND STUDENT STATUS

Although many graduate students depend upon part-time or full-time employment to meet expenses, the time demands for such employment must not be permitted to curtail academic achievement. IUP Graduate School facilities are offered only to students in a position to benefit from their graduate experience.

Students may regularly schedule a full-time academic load in most graduate programs. Full-time graduate student status is defined as 9 to 15 graduate semester hours per semester, while part-time status is defined eight or less semester hours per semester. Full-time graduate students should not hold full-time outside employment. Graduate assistants may not register for more than 12 total hours in any semester. No student may apply more than six hours in "tour" courses toward a graduate degree. Several departments also set maxima on the number of workshop and similar special offering hours applicable to their degree; students should obtain this information from the degree-sponsoring department.

RESIDENCY

Master's degree candidates may satisfy the residency requirement by taking all credits applicable to the IUP degree (except possibly six transfer credits — see "Credit Transfers", page 28 at IUP. Doctoral candidates have the following options: completion of a minimum of nine graduate credits at IUP in each of at least two consecutive semesters; completion of a minimum of nine graduate credits at IUP for at least one semester immediately preceding or following a summer of nine-hour study; completion at IUP of at least nine graduate credits in each of two consecutive summers plus six graduate credits during the intervening academic year; or completion of 12 graduate credits at IUP in each of two consecutive summers (this latter is recommended only in very special instances).

DEGREE CANDIDACY

Part-time graduate students must apply for degree candidacy through their Dean's Office immediately following completion of six graduate credit hours taken at IUP. Full-time students must do the same at the mid-term of the semester or summer term during which they are taking their 12th IUP graduate hour. The appropriate form is available at the Dean's Office. Notification of candidacy award or denial, as recommended by the program's sponsoring department, will be received from the Dean. Receipt of degree candidacy is a most important requirement in the student's progress toward an IUP graduate degree.

Admission to Candidacy

To qualify for admission to candidacy, the student must complete the following steps:

1. Submit an official application for admission to candidacy to the School Dean (form may be obtained at the student's school Dean's Office).
2. Complete with satisfactory grades (see description of Academic Good Standing) at least six semester hours (part-time students) or be in the process of completing 12 semester hours (full-time students — see first paragraph under Degree Candidacy) of graduate work taken at IUP.
3. Have on file in the Graduate Office scores from the Graduate Record Examination, or, for MBA and MS in Business students, The Graduate Management Admission Test.
4. Have satisfied the research course requirement (GR 615 Elements of Research, or equivalent).
5. Have on file in the Dean's Office a tentative program of studies for completion of the desired degree program.

Degree candidacy is awarded by the dean's office only upon recommendation of the student's academic department. The student will be notified in writing of candidacy decisions.

Individual departments may have requirements exceeding the minimum prescribed by the Graduate School. Students should inquire for such written requirements at the degree-sponsoring department.

GRADING SYSTEM

The following grades are used in reporting the standing of students at the end of each semester or summer term:

A — Excellent

B — Good

C — Fair

F — Failure

I — Incomplete

R — Research in Progress

W — Withdrawal

No "D" grade is recognized in IUP graduate work.

Quality points are assigned as follows: A — 4; B — 3; C — 2. No quality points are carried by the notations of F, I, R, and W.

The notation "I" is used to record work which, as far as it has progressed, is of passing grade but is incomplete because of accident, illness, pregnancy, or extreme personal disturbance. An "I" must be made up by the student within 180 calendar days following its issuance. If it is not, it is automatically converted to an "F". The "R" notation pertains only to thesis and dissertation

research credits when such research is in progress as a semester or summer terms ends, or in certain practicum-type courses approved for this notation by the Graduate Dean. All "R's" are replaced by the research grade eventually assigned when the research is completed. The "W" notation applies to certain withdrawals from courses; please see page 30 for discussions of withdrawals from the University and discrete course withdrawals. Note that an "F" is entered in the student's permanent academic record if a withdrawal of either type has not been processed in accordance with established procedures.

Course Auditing

Auditing is not permitted in a graduate course unless the student has been admitted to The Graduate School, has received permission to audit from the course's instructor, and has been approved for course enrollment by the dean of The Graduate School. Auditors must pay normal tuition and related fees. An auditor will, with permission from the instructor, participate in class discussion, do practicum work, take examinations, and share generally in the privileges of a class member. If the student completes all course requirements — but only if so — an "Audit" notation is posted to the student's academic record. No student who is required to carry a certain number of credits may count among those credits the credit of an audited course.

Class Cancellation

It is the policy of The Graduate School not to cancel regularly scheduled classes because of weather conditions, nor does it make announcements via radio, newspaper, or through its switchboard that classes are being suspended because of such conditions. In cases of emergencies disrupting transportation facilities or otherwise creating hazardous travel conditions, students should make those decisions as to attendance which appear appropriate to them in their particular circumstances.

Graduate Course Numbering

All dual-level courses, open to enrollment by both graduate and qualified undergraduate students, carry a 500-599 course number; all courses open only to graduate students carry 600-series and above numbers.

The number of credits attained in dual-level courses which shall be applicable to a degree program for any student shall be a maximum of fifty percent of the credits required for that degree.

COURSE ABBREVIATION KEY

The following departmental abbreviations are used to identify courses referred to in the Catalog:

Adult Education	AC	Foundations of Education	FE
Accounting	AG	Geography & Regional Planning	GE
Administrative Services	AD	Geoscience	GS
Art History	AH	Graduate	GR
Applied Music	AM	Health & Physical Ed	HP
Anthropology	AN	History	HI
Art	AR	Home Economics Ed	HE
Art Education	AT	Labor Relations	LR
Business Education	BE	Management	MG
Biology	BI	Marketing	MK
Chemistry	CH	Mathematics	MA
Communications Media	CM	Music	MU
Computer Science	CO	Nursing	NU
Consumer Services	CS	Philosophy	PH
Counselor Education	CE	Physics	PY
Criminology	CR	Political Science	PS
Distributive Education	DE	Psychology	PC
Education Administration	EA	Safety Sciences	SA
Economics	EC	Science	SC
Early Childhood Education	EE	Social Science	SS
Education	ED	Sociology	SO
Educational Psychology	EP	Special Education	
Elementary Education	EL	Ed of Except Children	EX
Elementary Mathematics	EM	Speech & Hearing	SH
Elementary Science	ES	Student Personnel	ST
English	EN	Theater	TH
Fine Arts	FA		
Finance/MIS	FS		
Food and Nutrition	FN		
Foreign Language	FL		
Critical Language	CL		
French	FR		
German	GM		
Greek	GK		
Latin	LA		
Russian	RU		
Spanish	SP		

Credit Transfers

Credit for graduate courses taken at another institution may under certain circumstances be incorporated as part of the graduate student's program at IUP. These courses must have been completed on the main campus of an accredited institution, or acceptable in its degree programs by that main campus. The grade earned must be a "B" or its equivalent or better. The time limitation rule cited on page 31 of this catalog relative to credit applicability to an IUP graduate degree generally pertains without modification to transfer credit applicability.

A maximum of six credits of transfer work is accepted. Transfer credits are not necessarily posted to the student's IUP graduate record until the student has been admitted to degree candidacy. Acceptance of transfer credit must be approved by the candidate's department and the Dean. Students wishing to transfer back to IUP credits taken at another institution while enrolled in an IUP graduate program must receive advance written authorization for credit acceptance from the School Dean.

Graduate Course Repeat Policy

Under University policy no graduate credit is recognized for courses completed with grades of "F". Graduate grading policy does not permit an award of "D." A student receiving a "C" or "F" grade may request through his/her adviser or coordinator of graduate studies approval to repeat the course to a maximum of two repeats. Each such repeat must receive final approval from the dean of the student's School.

Semester hours for repeated courses shall be counted only once for all attempts made and, should there be a difference in hours because of a course hours change, the hours and quality points earned when last taken shall be those used for quality point average computation.

Credits earned in only one repeated course may be applied to an IUP graduate degree.

Independent Study Maximum

Only six credits of Independent Study work may apply toward a student's master's degree unless written authorization for hours in excess of six is obtained from the student's adviser or coordinator of graduate studies and the dean, in that order.

Graduate Internship Policy

To qualify for a graduate internship appointment the graduate student must have a minimum of 12 IUP graduate credits earned and a minimum 3.0 GPA; must have been in full-time enrollment (nine graduate credits or more) during the semester or summer sessions (the latter taken as a whole) immediately preceding the academic period for which internship is requested,* and must meet departmental internship criteria. No more than six internship credits may apply to a graduate degree unless written approval of the student's departmental chairperson or graduate studies coordinator and the dean (in that order) is obtained. Continuation in an internship experience by a given graduate student is contingent upon the student's maintenance of satisfactory performance in all aspects of his/her degree program. Programmatic exceptions to the foregoing policy can be made only with the approval of the Graduate Council.

*For graduate students active during summers only, or during fall-spring semesters only, "immediately preceding the academic period" etc. refers to the student's last preceding active semester or summer session.

Final Credits Policy

All master's degree candidates must complete their program's final six credits of graduate work in courses offered by IUP. Under certain circumstances appropriate substitutions may be authorized. Students wishing such authorization must petition the Dean after obtaining the approval of their adviser and department chairperson or graduate studies coordinator.

Discrete Course Withdrawal

During the fall and spring semesters, graduate students may request authorization to withdraw from a graduate course without prejudice and with the grade of "W" by petitioning the School Dean in writing within the first two-thirds of the semester as determined by the published University calendar. The request must carry the endorsement of both the course instructor and the student's department chairperson or graduate studies coordinator, in that order. Graduate students wishing to withdraw from an undergraduate course within the prescribed period must do so by processing the standard undergraduate Discrete Course Withdrawal form.

For summer term classes and labs, the following is substituted for the above in the preceding paragraph; for Pre and Post Sessions, within the first six class days; for Main Session, within the first twelve class days.

Following the close of the established six weeks (or 6th day or 12th day) withdrawal period, a graduate student may withdraw from a course, either graduate or undergraduate, without penalty only with the written approval of his/her department chairperson or graduate studies coordinator and the Dean (in that order) for such reasons as accident, severe illness, or extreme personal disturbance. A student dropping a course under any other circumstance will automatically receive an "F" at the end of the semester or summer term.

The discrete course withdrawal refund policy is described on page 10.

Withdrawals from the University

Graduate students withdrawing from the University for any reason must process such withdrawals in writing through the office of the Dean. The official withdrawal date to be recognized will be established by the Dean.

Please refer to page 8 of this catalog for detailed description of the University's Refund Policy and related matters.

Official notification of course withdrawal will be sent by the Dean to the student's course instructor(s) and chairperson/graduate studies coordinator.

No person shall be considered withdrawn from the University unless the withdrawal process described herein has been employed.

Graduate Course Scheduling by Certain Undergraduates

IUP undergraduate students with an academic grade point average of at least 2.6 who are within 32 semester hours of graduation are permitted after

appropriate approvals, to take up to six semester hours of graduate work whether or not they have applied for acceptance into an IUP graduate program. Graduate hours so earned have no necessary bearing upon the meeting of undergraduate degree requirements, and no assurance is given or implied as to the hours' later applicability to a graduate degree should the students be admitted to an IUP graduate program.

Time Limitations

Program credits earned at IUP or accepted by transfer are applicable to IUP master's degrees over a period not to exceed five years from the date of their earning unless the period is extended through student petition approved by the program's chairperson or graduate studies coordinator and the graduate dean. Doctoral candidates must complete degree requirements no later than seven years after beginning IUP doctoral program course work unless an extension similarly is authorized.

Graduation

Early in the student's final semester or summer session, he/she must file an application for graduation with the Dean's office on a form furnished by that office. Graduation applications must be filed by the deadlines shown on the Graduate Calendar.

When all requirements for the degree have been completed and this fact is attested to by the student's department, the student's academic record will be so posted and the degree will be awarded at the following established diploma-award date. An official diploma is presented to the student at that time.

Graduate credits used to satisfy the minimum requirements in one graduate program cannot be used again to satisfy the minimum requirements of a separate graduate program.

DOCTORAL DEGREE PROGRAMS

The Graduate School at IUP offers work leading to the degree Doctor of Philosophy in the following fields:

English and American Literature
English Education

It offers work leading to the degree Doctor of Education in the following fields:

Counselor Education
Elementary Education

Doctoral degrees are conferred for distinguished achievement in a particular field of scholarship and for demonstrated ability to perform independent research in an area of that field. No specific number of course credits entitles a student to the degree.

Departments offering the doctoral degree usually have their own special requirements beyond the Graduate School degree requirements. The latter are equally binding. Departments may modify or in specific cases waive The Graduate School requirements only with Graduate Council approval.

Requirements for the Doctoral Degree

Students seeking a doctoral degree must satisfy the minimum Graduate School requirements described in the following. Mention has been made that sponsoring departments may have additional requirements; students must be equally familiar with departmental requirements.

Under certain circumstances Graduate School requirements for the Doctoral degree may be satisfied by means of substitution. Requests for the acceptance of substitutions should be made in the form of a petition to the Graduate Dean, the petition first having the approval of the student's adviser and department chairperson or graduate studies coordinator.

Credit Requirement — A minimum of 60 graduate semester credits, exclusive of dissertation credits, must be earned beyond the bachelor's degree for either the PhD or the DEd.

Transfer Credit — Transfer credit is limited to the credit equivalent of a recognized master's degree, except in those special cases recommended by the student's department chairperson or graduate studies coordinator and approved by the Graduate Dean and up to 12 graduate credits in the use of program specific interinstitutional agreements approved by the Graduate Dean.

Admission to Candidacy — Each student admitted to a doctoral program must apply for doctoral degree candidacy after completing at IUP no less than nine nor more than 15 graduate credits beyond the master's degree. The student must have a minimum quality point average of 3.0. The student's minimum GPA may be set higher than the foregoing Graduate School requirement by the program's sponsoring department, but in no case may it be lower.

Candidacy Examination — The candidacy examination, which may be written, oral, or both, as determined by the program's sponsoring department, and which may serve also as the final examination for the master's degree if a department so prescribes, is administered by the department in the student's field of specialization. The examination may not be taken until the student has completed at least one year of study beyond the bachelor's degree. Examination scores must satisfy the student's dissertation committee.

The Dissertation Committee — The candidate's dissertation committee supervises the student's degree program from the point at which he/she is admitted to doctoral degree candidacy through defense of the dissertation. The committee approves the student's plan of study; arranges for the candidacy examination; arranges for the comprehensive examination; and oversees the candidate's general supervision related to research, the dissertation, and the general meeting of degree requirements.

The Comprehensive Examination — This examination is given, usually upon the candidate's completion of course work, to determine the student's stage of progress in the degree field and fields related to it, and the student's likelihood of success in his/her research — dissertation phase. The examination may be written, oral, or both. It is not necessarily limited to areas in which the candidate has taken course work.

Foreign Language/Research Tool Options — Foreign language and/or research tool requirements for PhD candidates vary by program; sponsoring departments should be consulted for specific program requirements. Options include the following: demonstration of a competent reading knowledge of two foreign languages appropriate to the general field of study, or of a reading knowledge of one foreign language together with a comprehensive knowledge of its literature; or presentation of six graduate credits in theoretical or applied linguistics; or of six graduate credits in a computer language.

Requirements in DEd programs also vary. The DEd candidate must a) demonstrate reading competency in two foreign languages as above, or b) pass a sequence of courses in research and statistics as prescribed by his/her major department, and/or demonstrate, through examination or other evidence satisfactory to the major department, competence in a computer language. Again, the student should consult his/her department directly.

Research Proposal — After the candidate has passed the comprehensive examination and has done extensive preliminary proposal research, he/she must present and defend a research proposal before the dissertation committee. A copy of the proposal must be placed in the hands of all committee members at least two weeks in advance of the scheduled meeting. The proposal must be found satisfactory by all members of the committee before the candidate may proceed with the dissertation.

The Dissertation — A dissertation is required of all doctoral candidates. The paper must demonstrate the candidate's mastery of his/her research and reflect the results of an original investigation in the principal field of study. The goal should be to make a definite original contribution to knowledge in the field. The notation "R" is made in the candidate's academic record while such research is in progress; please see page 26 for description of this notation's use.

Dissertation Review Meeting — Upon acceptance of the dissertation by the candidate's adviser, the candidate must present a finished copy to the dean of the School, from whom it circulates to all members of the dissertation committee. At a time convenient to all members, the candidate shall then request a formal meeting of the dissertation committee to secure dissertation approval. The dissertation must be approved in writing by each member of the committee.

Publication of the Dissertation — Following dissertation approval by the committee, three copies of the dissertation and two copies of an abstract must be submitted to the School Dean. The program's sponsoring department may also require a copy for its archives.

The dissertation must be microfilmed according to the plan provided by University Microfilm, Ann Arbor, Michigan.

Re-examination — A student who fails the candidacy examination, or any part of the comprehensive examination, or any of the examinations in foreign languages and/or computer language, may request re-examination not earlier than one semester following the time of failure, nor later than one year after that date. No student is permitted a third examination without a recommendation to that effect from the degree program's sponsoring department and the approval of the Graduate Council.

Application for Graduation — Formal application for graduation must be filed with the dean of the student's School no later than two months prior to the University's published degree-granting date at which the candidate expects to receive the doctoral degree.

MASTER'S DEGREE PROGRAMS

The Graduate School offers Master of Arts and Master of Science degrees in most academic fields plus the professional degrees Master of Business Administration and Master of Education. See below for specific degree fields. All students working toward a master's degree must satisfy The Graduate School policies set forth in this catalog. Most departments have additional special program requirements; students must be equally familiar with departmental requirements.

Under certain circumstances a specific Graduate School requirement for the master's degree may be satisfied by means of substitution. In no case are requirements waived. Requests for substitutions must be made by petition to the School Dean after approval by the student's adviser and department chairperson or graduate studies coordinator.

Master of Arts degrees are offered in the following:

Adult/Community Education	History
Art	Labor Relations
Art Therapy	Music
Chemistry	Physics
Counseling Services	Political Science
Criminology	Psychology
English	Sociology
Geography	Spanish Language & Literature
Geology	Student Personnel Services

Master of Science degrees are offered in:

Biology	Health & Physical Education (Sport Sciences)
Business	Mathematics
Chemistry	Nutrition
Exceptionality (Adult)	Physics
Geography	Speech-Language Pathology

A Master of Business Administration degree (MBA) is offered.

Master of Education degrees are offered in the following:

Art	English
Biology	Geography
Business	German
Chemistry	Home Economics
Communications Media	Mathematics
Education of Exceptional Children	Music
Educational Psychology	Physics
Elementary Education	Reading
Elementary Mathematics	Science
Elementary Science	Social Science
Elementary or Secondary School Counseling	Spanish
	Speech-Language Pathology

The Thesis/No Thesis Option, Master's Programs

Several IUP master's degree programs offer the graduate student a thesis/no-thesis option.

When the no-thesis option is chosen, additional approved course work — usually six or more credit hours — is required.

The typical committee thesis arrangement (3-6 s.h.) has the student working with a committee of four faculty members including the student's adviser and two faculty members, one of whom may or may not be a member of the program's department. The committee may include an off-campus person with special expertise as part of the four if requested by the department and approved by the Graduate Dean.

DEPARTMENT	DEGREE	THESIS	CREDITS	COMMENTS
Adult/Community Ed	MA	Optional	30	
Art	MA	Required	30	
	MEd	Required	30	
Art Therapy	MA	Required	39	
Biology	MS	Required	32	— Thesis
	MEd	Optional	30	— Thesis
			33	— No Thesis
Business	MBA	No Thesis		
	MEd	Optional	30	
	MS	Optional	30	
Chemistry	MA	Optional	30	— Thesis
	MS	Required	30	— Thesis
	MEd	Optional	30	— Thesis
Communications Media	MEd	Optional	30	— Thesis
			36	— No Thesis

DEPARTMENT	DEGREE	THESIS	CREDITS	COMMENTS
Counselor Education	MEd	Optional	33	
	MA	Optional	36 39	— Thesis — No Thesis
Criminology	MA	Optional	30	— Thesis
			36	— No Thesis
Educational Psych.	MEd	Optional	33	— Thesis
			36	— No Thesis
Education of Exceptional Children	MEd	Optional	33	— Thesis
			36	— No Thesis
Elementary Education	MEd	Optional	30	— Thesis
			36	— No Thesis
Elementary Math.	MEd	Optional	30	— Thesis
			30	— No Thesis
Elementary Science	MEd	Optional	30	— Thesis
			33	— No Thesis
English	MA	Optional	30	— Thesis
			30	— No Thesis
	MEd	Optional	30	— Thesis
			30	— No Thesis
Exceptionality	MS	Optional	33	— Thesis
			36	— No Thesis
Food and Nutrition	MS	Optional	30	— Thesis
			33	— No Thesis
Geography	MEd	Optional	30	— Thesis
			36	— No Thesis
	MA	Optional	30	— Thesis
			36	— No Thesis
	MS	Optional	30	— Thesis
			36	— No Thesis
Geology	MA	Required	30	
German	MEd	Optional	30	
Health & Physical Ed.	MA	Optional	30	
	MS	Optional	36	
History	MA	Optional	30	— Thesis
			36	— No Thesis
Home Economics	MEd	Optional	30	— Thesis
			33	— No Thesis
Labor Relations	MA	Optional	42	— Thesis (3-6 credits)
	MEd	Optional	30	— Thesis
Mathematics			30	— No Thesis
	MS	Optional	30	— Thesis
			30	— No Thesis
Music	MA	Recital	31	
In Music Performance	MA	Recital	31	
In Theory or Musical Composition	MA	Optional	31	— Musical Composition
In Music History	MA	Required	31	
In Music Education	MA	Optional	30	— Course Work or Thesis
	MEd	Optional	30	— Course Work or Thesis

DEPARTMENT	DEGREE	THESIS	MINIMUM CREDITS	COMMENTS
Physics	MS	Required	30	
	MEd	Optional	30	— Thesis
			33	— No Thesis
	MA	Optional	30	— Thesis
			33	— No Thesis
Political Science	MA			
International Studies		Optional	30	Internship required if Thesis Option not chosen
Political Studies		Optional	30	— Internship required
Public Affairs		No Thesis	39	— Internship required
Professional Growth	MEd	Required	30	4 credit thesis required
	MS	Required	30	— 4 credit thesis required
	MA	Required	30	— 4 credit thesis required
Psychology	MA			
Clinical		Required	45	
Community		Required	45	
General Experimental		Required	33	
Reading	MEd	Optional	32	— Thesis
			36	— No Thesis
Social Science	MEd	Optional	30	— Thesis
			36	— No Thesis
Sociology	MA	Optional	30	— Thesis
			36	— No Thesis
Spanish	MEd	Optional	30	— Thesis
			33	— No Thesis
	MA	Optional	30	— Thesis
			33	— No Thesis
Speech-Language Pathology	MEd	Optional	36	— Thesis
			36	— No Thesis
	MS	Optional	36	— Thesis
			36	— No Thesis
Student Personnel Ser.	MA	Optional	30	— Thesis
			30	— No Thesis

MASTER OF EDUCATION CURRICULUM REQUIREMENTS

All Master of Education degrees at IUP are patterned as indicated below. The goal is to assure the student strength in humanistic and behavioral areas as well as professional development in selected subject specialty areas. Specific course descriptions are presented by department in the catalog section which follows:

I. Professional Development Area (nine s.h.)

A. Humanistic Studies (three s.h.)

One of the following courses:

- | | |
|--------|----------------------------------------|
| FE 611 | Historical Foundations of Education |
| FE 612 | Philosophical Foundations of Education |
| FE 613 | Social Foundations of Education |
| FE 514 | Comparative Foundations of Education |

B. Behavioral Studies (three s.h.)

One of the following courses:

- | | |
|--------|-------------------------------------|
| EP 604 | Advanced Educational Psychology |
| EP 573 | Psychology of Adolescent Education |
| EP 576 | Behavioral Problems |
| EP 578 | Learning |
| EP 580 | Pupil Adjustment |
| CE 629 | Group Procedures (Elementary) |
| CE 639 | Group Procedures |
| EX 631 | Psychology of the Exceptional Child |

C. Research (three s.h.)

- | | |
|--------|----------------------|
| GR 615 | Elements of Research |
|--------|----------------------|

II. Specialization Core (six s.h.)

- | | |
|--------|--------------------------------------------|
| FE 515 | Curriculum Development |
| CM 600 | Seminar in Learning Resources |
| OR | Department Methods or Curriculum Course(s) |

III. Subject Area and/or Electives (11-15 s.h. maximum)

SCHOOL CERTIFICATION

Students admitted to The Graduate School who wish to work toward certification in a specific field(s) should check the descriptions of certification programs found in this catalog for requirements related to their program(s) of interest. If a given certification program requires completion of a master's degree, the master's degree procedures and regulations set forth in this catalog apply. The Graduate School does not, however, certify students; certification is processed by the Dean of the School of Education.

Principal Certification

IUP currently offers a competency based school administrative certification program in elementary and secondary education. Applicants should contact the director of the principal's certification program (Dean's Office, School of Education, Stouffer Hall) for more information.

Graduate Study Beyond the Master's Degree

It is not unusual to find graduate students enrolling in more courses than they need to meet the requirements of a master's degree. Such action can be beneficial beyond the personal satisfactions which accrue, because the added studies may be well received by employers whether in business, government, or the school system in such matters as certification. However, students should understand that most graduate schools have residency requirements at the doctoral as well as master's level and frequently will accept no more than 30 graduate semester hours earned elsewhere as applicable to a doctorate.





GENERAL SERVICE COURSES

The following Graduate School courses are taught by selected departmental faculty and are open to all qualified graduate students independent of degree or certification program. The student should check program applicability with his/her adviser, department chairperson, or graduate studies coordinator.

RESEARCH

GR 615 ELEMENTS OF RESEARCH

3 s.h.

Selection of a research problem, data collection, types of research, research reports, and use of the library and computer in connection with research problems are studied. Elements of statistics are introduced. This course provides background for preparation of the thesis and enables the student to become an intelligent consumer of products of academic research. Required of all students working toward the MEd degree.

***XX 850 THESIS**

1-6 s.h.

For students writing the thesis. GR 850 should be scheduled for the semester in which the student plans to complete his/her work.

***XX 851 RECITAL**

2-4 s.h.

Required for students enrolled in the program Master of Arts in Music-Performance. Graduate students in music education have the option to prepare and perform a formal recital in their major performing area under the guidance of their private teacher. Approval is granted from the area faculty of the student's performance major. MU 851 should be scheduled for the semester in which the student plans to give the recital.

***XX 950 DISSERTATION**

1-12 s.h. — Hours to be arranged

Students preparing a doctoral dissertation for credit must register for this course. The number of credits assigned and the extent of time for which research activity is scheduled depend upon the nature and scope of the individual student's research problem and his/her general doctoral program.

*Each Academic department utilizes its own two-letter prefix.

NOTE: Credits for both thesis and dissertation if not completed during the semester scheduled are recorded as RESEARCH IN PROGRESS. They remain so until the paper is approved. THEY DO NOT AUTOMATICALLY REVERT TO THE GRADE OF "F" in a specific length of time. Also, thesis and dissertation can be programmed above the regular load.

STATISTICS

GR 516 STATISTICAL METHODS I

3 s.h.

Measurement and statistical techniques as used in administration, and educational research. Basic descriptive statistics, including measures of central tendency, variability and correlation are developed. Reliability and validity of test scores with emphasis on use of statistical techniques studied and their interpretation.

GR 517 STATISTICAL METHODS II

3 s.h.

Using computer programs, a wide array of statistical procedures for research workers are explored. Basic concepts of statistical inference and prediction are reviewed, including regression analysis and prediction, hypothesis testing, analysis of variance and covariance, and partial and multiple correlation. Emphasis on use of computer and interpretation of computer print-outs along with understanding techniques employed. **No computer knowledge is necessary.** Prerequisite: GR 516 or equivalent.

OTHER COURSES

GR 681 SPECIAL TOPICS

1-3 s.h.

Group study of course material not offered in other graduate courses.

GR 699 INDEPENDENT STUDY

1-3 s.h.

Individualized in-depth study of an approved topic directed by a participating faculty member and approved administratively.

NOTE: Neither GR 681 or GR 699 may be scheduled without prior written approval of the Graduate Dean.

SS 599 CONTEMPORARY EUROPE

3 s.h.

A study/tour program in Europe, commonly of three weeks duration each summer. Itinerary differs, but normally includes London, Paris, and Rome, Florence, Austria, and Switzerland, among others. Program atmosphere is informal, and always fun and tiring (lots of walking). Informal lectures on site, guided tours. Academic work includes reading before departure and keeping a daily log.

ED 595 INTERNATIONAL STUDYTOUR IN EDUCATION

3 s.h.

Provides an analysis of educational programs and methodology in selected countries. Introduces students to series of diverse educational experiences. Special attention to teaching techniques, innovative curricula and school organizational patterns. Teaching takes place on site in selected countries.

SUPERVISED LABORATORY EXPERIENCE (TEACHING)

The following course, designed for cooperating teachers and others working with student teachers, is open to persons having a teaching certificate and teaching experience.

ED 540 SUPERVISION OF STUDENT TEACHING

Designed for cooperating teachers and others working with student teachers, this course provides opportunity for the development of pertinent materials and for continuous evaluation of various aspects of the student teaching program. Stress is also given to evaluate procedures used in working with prospective teachers. Basic principles underlying an effective student teaching program are examined from a theoretical and applied viewpoint. Prerequisite: Teaching certificate and teaching experience.



L. LEONARD STRIGHT HALL



GRADUATE PROGRAMS AND COURSES

ADULT AND COMMUNITY EDUCATION

The Master of Arts in Adult and Community Education is the only program of its kind in Pennsylvania and adjacent states. It provides an intensive and flexible study of the growing field of adult and community education. The program's aim is to prepare qualified professionals for leadership roles in their fields by providing a proportionate balance of academic training, practical field experience, and individual research. It provides a solid base of concepts and experience which will enable students to proceed toward a doctorate at another institution.

A minimum of 30 credit hours is required for completion of the degree. These include 18 credits which are individualized and accommodate students from a wide variety of backgrounds by allowing them to pursue an area of concentration or special interest.

An individually designed internship, a field project, is required of all students. Electives are interdisciplinary. The master's thesis is encouraged but it is optional; AC 699 Advanced Seminar is taken in its place.

Core courses include those listed below as well as GR 615. For a description of GR courses, see entry under "General Service Courses", page 41.

COURSE DESCRIPTIONS

AC 620 INTRODUCTION TO ADULT AND COMMUNITY EDUCATION 3 s.h.

A survey course which examines adult and community education as to history, philosophy, current programs, literature, and materials available.

AC 621 THE ADULT LEARNER 3 s.h.

A focus on the adult as a learner — physiological, psychological, sociological and intellectual characteristics and how they affect adult learning and teaching.

AC 623 ORGANIZATION AND ADMINISTRATION IN ADULT AND
COMMUNITY EDUCATION 3 s.h.

A study of basic administration skills; of community as to definition, organization, structure, and power bases; of school and agency organization and administration. Prerequisite: AC 620.

AC 635 SEMINAR IN ADULT AND COMMUNITY EDUCATION 3 s.h.

An intensive study of special problems in adult and community education; research and writing skills are reviewed; a research paper is required Prerequisites: 9 credits in A/C Education.

AC 640 INTERNSHIP 6 s.h.

An individually designed field project where students work with the supervisor of a practitioner in the field and a university supervisor. Prerequisite: adviser approval.

AC 699 INDEPENDENT STUDY

An opportunity for students who wish to do independent research in a special area of adult and community education. Prerequisite: approval.

ANTHROPOLOGY

Anthropology is the study of human biological and cultural evolution. The discipline is organized into four sub-fields: sociocultural anthropology, physical anthropology, linguistics and archaeology. The breadth of anthropology gives the discipline wide applicability to a variety of careers and lifetime undertakings.

Although there is presently no graduate degree program in anthropology, courses in anthropology are a component of the MEd degree in Social Science and may be used as electives for MA degrees in other programs.

COURSE DESCRIPTIONS

AN 514 ETHNOLOGY OF NORTH AMERICAN INDIANS 3 s.h.

Review of culture history and culture area characteristics of Indians of North America. Representative groups at different levels of economic, social and political complexity chosen for more detailed study related to historical, functional, ecological and psychological concepts. Current living conditions of Native Americans ranging from lifestyles on the reservation to urban settings examined in view of recent theories of social and cultural change.

AN 520 FIELD SCHOOL IN ARCHAEOLOGY 6 s.h.

Current strategies and techniques in archaeological excavation research applied to prehistorical and/or historic sites in Indiana and adjacent areas. Relationships of archaeological and social science paradigms of archaeological data, national and state conservation policies, and archaeological study of culture change examined in excavation context.

AN 522 CULTURE AND PERSONALITY 3 s.h.

Studies personality traits unique to prescribed cultural or institutional settings. Subject matter includes socialization, emotional expression, kinesics, deviant roles, cultural aspects of mental disturbance, and value orientation. Some attention given to research methods employed in the discipline.

AN 571 CULTURAL AREA STUDIES

3 s.h.

Analysis of pre-historic, and contemporary aspects of ethnological studies in a culture area. Examines social organization, linguistic ties cultural ecology, folklore mythology, artistic expression and world view in a particular culture area. This course may be repeated according to selection of culture areas by instructors responsible for the course. The following culture areas are initially available: AN 571A CULTURAL AREA STUDIES: JAPAN: AN 571C CULTURAL AREAS STUDIES: THE CARIBBEAN

AN 691 STUDIES IN ANTHROPOLOGY

3 s.h.

Surveys anthropological approach to human biological and cultural heritage with special reference to physical variability of human populations, past and present. Stresses relationship between culture and processes of biological evolution

AN 692 COMPARATIVE CULTURES

3 s.h.

Comparative study of selected examples of world cultures ranging from hunting and gathering groups to modern industrial systems viewed as adaptations to their geographical, cultural and social environments. Emphasis on the universal features of culture.

AN 693 THE SCIENCE OF CULTURE

3 s.h.

Examination of major theories of cultural anthropology employed to account for variety and structure of human cultures. Worldwide data utilized; interplay between data and theory emphasized.

AN 694 ANTHROPOLOGY SEMINAR

3 s.h.

Considers conceptual problems and definitions in anthropology. Formulations of a variety of research problems central in anthropology emphasized.

AN 695 PREHISTORY

3 s.h.

Comparative study of specific cultural trajectories and cultural processes leading toward the emergence of urban society, political differentiation, the state, social stratification, craft specialization and militarization. Various culture change models examined using archaeological excavation data from China, India, Egypt, Mesopotamia, Africa, and Middle and South America.

ART AND ART EDUCATION

The following curricula make it possible for a mature student capable of self-direction to select a program suited to individual needs with the help of an adviser. In effect, the student and adviser can tailor-make a program of study.

Procedure for Admission (departmental approval)

1. The student must file a "letter of intent" stating the applicant's area(s) of specialization and reasons for these choices. The area of specialization is subject to review including one revision in consultation with the student's advisory committee. This review will take place between six and 12 study hours. It is the student's responsibility to arrange for the review.

2. For admission to the MEd program, a student must have Level I Certification or the equivalent. To be admitted to the MEd and Certification or the MA in studio art, the candidate must possess a BS in Art Education, BFA or BA with a studio major or equivalent.
3. All applicants are required to submit a portfolio of work consisting of between 12 and 15 items. The work, if possible, should represent the applicant's area of specialization.

Research and Independent Study

Independent Study: A student may select a specific problem for one to three semester hours and pursue it in off campus study with the help of an adviser. The student will present a proposal for approval to the adviser of his/her choice and the director of graduate studies. The study will be reviewed by the advisory committee and juried at the end by the same committee.

Thesis: Under both thesis and independent study, the final product may be a one-artist show of the minor and major area. The show will be juried by the thesis committee, which will be composed of the advisory committee. The show will be accompanied by a written statement, sketch books, catalogue, notes or other methods of reporting deemed appropriate by the committee. All shows will leave some permanent evidence of their existence such as slides, photographs or catalogues.

MASTER OF EDUCATION IN ART

See page 38 for additional information on the MEd degree.

- I. Professional Development Area (nine s.h.)
 - A. Humanistic Studies (three s.h.) — One of the following:
FE 611, FE 612, FE 613, or FE 514.
 - B. Behavioral Studies (three s.h.) — One of the following:
EP 604, EP 573, EP 576, EP 578, EP 580, CE 629, CE 639, or EX 631
 - C. Research (three s.h.)
GR 615, Elements of Research
- II. Specialization Core (six s.h.) — One of the following courses:
FE 515, CM 600, AT 610, AT 611, AT 614, *AT 613.
- III. Subject Area and/or Elective
 - AR Studio courses are listed in catalog (nine s.h.)
 Art Elective (three s.h.)
 - AR 850 Thesis (three s.h.)

For description of FE courses see section on FOUNDATIONS OF EDUCATION; for EP courses, EDUCATIONAL PSYCHOLOGY; for CE courses, COUNSELOR EDUCATION; for EX courses, SPECIAL EDUCATION; for CM course, COMMUNICATION MEDIA.

For description of GR courses, see entry under "GENERAL SERVICE COURSES," page 41

MASTER OF ARTS IN ART THERAPY

The Master of Arts degree in Art Therapy program is designed to fulfill the minimum graduate requirements for an art therapist. Following the guidelines of the American Art Therapy Association, the master's degree in Art Therapy at IUP is designed to provide the theoretical and practical art therapy skills which are applied in clinical, education, or rehabilitative settings. The program is an interdisciplinary one of art, art therapy, psychology, and related areas. A practicum of 600 hours under the supervision of an art therapist in an applicable setting is required.

*Required

In addition to meeting the requirements for admission to The Graduate School, an interview with a portfolio of the candidate's art work will be required and an evaluation of the candidate's interests in therapeutic work will follow. It is suggested that graduate students in art therapy have a background in human, normal, and abnormal psychology and have background suitable to professional work in the field. Upon the director's advisement students may be required to take additional undergraduate course work if they are found to lack proficiency in art or the social sciences. Graduate credit is not given for undergraduate courses which may be required.

The MA in Art Therapy requires the successful completion of a minimum of 39 semester hours.

The following courses are required: AT 554 (3 s.h.), AT 655 (3 s.h.), AT 656 (6 s.h.), AT 657 (pending approval, 0-3 s.h.), AR 850 (3-6 s.h.)

Seven of the following core courses must be chosen: EP 662 (3 s.h.), EP 576 (3 s.h.), PC 574 (3 s.h.), PC 633 (3 s.h.), PC 634 (3 s.h.), *PC 635 (3 s.h.), PC 641 (3 s.h.), *PC 642 (3 s.h.), *PC 643 (3 s.h.), PC 644 (3 s.h.), CE 646 (3 s.h.).

Electives may be chosen from the following: PC 530 (3 s.h.), PC 561 (3 s.h.), EP 573 (3 s.h.), EP 604 (3 s.h.), EP 576 (3 s.h.), EP 578 (3 s.h.), EP 580 (3 s.h.), EX 631, EX 688 (3 s.h.), EX 639 (3 s.h.), EX 665 (3 s.h.)

For description of PC courses, see section on PSYCHOLOGY; for EP courses, EDUCATIONAL PSYCHOLOGY; for EX course, SPECIAL EDUCATION.

For description of GR courses, see entry under "GENERAL SERVICE COURSES," page 41.

Students are expected to acquire as much practical experience as possible during their studies. In addition to the required 600 hours of practicum, students will be expected to accomplish field work in connection with both introduction and seminar art therapy courses. Practicum requires between two and three workdays per week. The same number of hours may be provided by concentrated summer work in a shorter period or by evening work over a more extended period. Such extension must be approved by the director of art therapy.

The University takes responsibility for providing field placements in the Indiana area only. Students wishing to arrange for other field placements are at liberty to investigate possibilities.

Each student's program must be approved by the director of art therapy and the coordinator of graduate studies during the first semester of graduate study.

It is the feeling of the University and the American Art Therapy Association that the acquisition of competence in the professional field demands two academic years of study.

*Permission of Instructor

MASTER OF ARTS IN ART

Studio Major (AR 640 through AR 668)	no less than	12
Studio Minor (AR 640 through AR 668)	no less than	6
Art Seminar (AR 615)		3
Thesis (AR 850)		3-6
Electives		3-6
TOTAL		30

MASTER OF EDUCATION PLUS CERTIFICATION

Undergraduate Requirements

Elementary Education (AR 317, EL 421, EL 422)	11
Secondary Certification (AR 318, ED 441, ED 442)	11
Elementary and Secondary Certification	22

Graduate Requirements

Seminar in Learning Resources (CM 600)	3
Educational Psychology (EP 604 or EP 618)	3
Foundations of Education (FE 611, FE 612, FE 613, FE 514, FE 515)	3
Art Education (Select Two: AT 610, AT 611, AT 612, AT 614)	6
AT 613 Research in Art Education	3
GR 615 Elements of Research	3
AR 850 Thesis	3
Studio	9

For description of CM course, see section on COMMUNICATIONS MEDIA; for EP courses, EDUCATIONAL PSYCHOLOGY; for FE courses, FOUNDATIONS OF EDUCATION.

For description of GR courses, see entry under GENERAL SERVICE COURSES," page 41.

GRADUATE MINOR IN MEDIA

Graduate students may, with the approval of their adviser, obtain a minor in Media at IUP. The minor consists of a minimum of six semester hours of work in graduate level courses in Media and may include as many hours in Media as are approved by the student's graduate program adviser.

The minor may include any combination of courses offered by the Communications Media Department except CM 630 Classification and Cataloging of Learning Resources, CM 660 Management of Learning Resources Programs and CM 699 Internship. These courses are designed for the professional Media Center Manager rather than the person minoring in Media. Media minors may be designed around the list of courses under communications Media (page 78). All courses are three semester hour credits except CM 699, which may be from one to three semester hour credits.

The number of semester hours in each of these programs represents the minimum. The student's committee reserves the right to recommend more.

COURSE DESCRIPTIONS

AH 506 ANCIENT MIGRATORY ART 3 s.h.

Survey of painting, architecture and sculpture of Prehistoric Man; Egypt and the Near East, as well as Art of Primitive Man of later times — The American Indian, African Art and the Art of the Oceanic.

AH 507 MEDIEVAL ART 3 s.h.

Prerequisite Art History majors, by special arrangement. Art and architecture of Europe during Middle Ages, beginning with a study of Early Christian and Byzantine art and concluding with art of Romanesque and Gothic periods.

AH 508 ITALIAN RENAISSANCE ART 3 s.h.

Art History majors, by special arrangement. Covers span of Italian art from 1400's through 1850 and Mannerist movement. Special attention paid to great masters of the period.

AH 509 BAROQUE AND ROCOCO ART 3 s.h.

General survey of art from 1575-1775. Will include architecture, sculpture, painting and other arts.

AH 519 MUSEOLOGY 3 s.h.

The student will work in the University museum under the supervision of the museum director. Museum techniques and practices will be stressed in an "on-the-job" training situation. The role of the graduate student will be that of "acting curator" of specific areas of his/her choice, and supervising selection and hanging of shows.

AH 522 ART IN AMERICA 3 s.h.

Surveys American art and its relation to development of American ideas and ideals

AH 523 SEMINAR IN ART CRITICISM 3 s.h.

Explores philosophic theories of art and art products. An attempt to relate these theories to senses and form itself, and to technical, psychological and cultural values. Primary concepts explored are play, illusion, imitation, beauty, emotional expression, imagination, empathy, creativity and experience. Time will be given to forms of art that are not primarily visual, including music, dance, literature and poetry.

AH 524	ART OF THE EAST	3 s.h.
Nature of Eastern Art's meaning and place in contemporary world culture.		
AH 625	ARCHITECTURAL INFLUENCES IN A CONTEMPORARY SOCIETY	3 s.h.
Experimental problems in structure and aesthetics as related to architecture. Attempts are made to search out the historical roots of many contemporary styles of architecture.		
AH 626	PRE-COLUMBIAN ART	3 s.h.
Art of Mezo-American cultures. Mayas, Aztecs and Incas. as influenced by Oceanic migrations.		
AH 628	WORLD ART SINCE 1875	3 s.h.
Discoveries and advances in artistic expression in modern times. Subject matter for study may be found in any or all of the arts.		
<i>All art history courses are open as electives to all students.</i>		
AR 615	ART SEMINAR	3 s.h.
Opportunity for student to discuss problems in art related to studio interests. Proposals will also be prepared For MA candidates only.		
AR 616	DIRECTED STUDIES	0-3 s.h.
Offered in instances where a particular course is needed by a student, but is not on the regular schedule rotation. Approval must be secured from the adviser, the instructor involved and the Graduate Coordinator.		
AR 640	GRADUATE STUDIO IN CERAMICS	3-18 s.h.
Prerequisite — at least one year of undergraduate ceramics. All aspects of hand-forming, decorating, glazing and firing will be dealt with. This may include body and glaze formulation and reduction, oxidation, salt, wood and raku firing as well as thrown, coiled or slab construction or combinations thereof. Historic and contemporary ceramics and philosophies of the craft.		
AR 644	GRADUATE STUDIO IN FABRICS	3-18 s.h.
Fundamentals of fabric construction and processes. Emphasis on experimental approaches to fabric design and construction. Designed to meet the needs of beginning as well as advanced students.		
AR 647	GRADUATE STUDIO IN JEWELRY AND METAL WORK	3-18 s.h.
Advanced study dealing with specialized problems in design and execution of metal work and jewelry. A thesis may be developed depending upon research in one of areas relating to this field. history, materials, tools, processes or teaching techniques of the craft.		
AR 650	GRADUATE SCHOOL IN SCULPTURE	3-18 s.h.
An advanced course in which students are expected to work on more complex problems of sculpture. A student may explore one or several sculpture or modeling media.		
AR 653	GRADUATE STUDIO IN WOODWORKING	3-18 s.h.
Specialized study and experiences are related to design and execution of problems relating to wood as a crafts material. Opportunity is presented to more intensive exploration of materials and processes of this craft employing both hand and power tools.		

AR 661 GRADUATE STUDIO IN DRAWING 3-18 s h

Drawing as a language and continued development of skill in communication and expression in all kinds of materials and media Drawing as an intimate work of the artist will be stressed

AR 662 GRADUATE STUDIO IN OIL PAINTING 3-18 s h

Traditional and contemporary methods and techniques in area of plastic painting media Composition, in relation to modern painters problems Opportunity is presented for exploration and specialization in depth as well as breadth.

AR 665 GRADUATE STUDIO IN WATERCOLOR PAINTING 3-18 s h

Painting in transparent watercolor, gouache, mixed media and with new water soluble paints, such as casein and acrylic polymer tempera. Traditional, current and experimental approaches with emphasis on design and emotional content

AR 668 GRADUATE STUDIO IN PRINTMAKING 3-18 s h

Prerequisite — AR 217 or its equivalent. Modes, media, material, techniques and processes of graphic arts and their use in expression The student may concentrate on intensive exploration of one media in depth or explore a number of media for breadth of experience

Studio courses may be taken for a total of 18 semester hours in one studio. No more than 6 semester hours in one studio may be taken during any one semester

AT 610 ART AND THE EXCEPTIONAL CHILD 3 s.h.

Designed to consider characteristics and needs of the mentally retarded and the intellectually gifted child with particular emphasis on art aspects of their education

AT 611 ART CURRICULUM DEVELOPMENT IN ART EDUCATION 3 s.h.

A seminar and study of curricula at all levels. Particular attention given to individual needs of class participants in development of curricula pertinent to their own teaching situations. For those students who have not yet taught, theoretical and practical problems will be examined

AT 612 SUPERVISION AND ADMINISTRATION IN ART EDUCATION 3 s.h.

Responsibilities, functions and duties of Art Supervisors and Administrators.

AT 613 RESEARCH IN ART EDUCATION 3 s.h.

Required of all Art Education majors. Reviews past and present research focusing upon the methodologies pertinent to the field. Prerequisite for this course, GR 615, is to be scheduled within the first four to eight semester hours. AT 613 must be taken as soon after as possible but within the first 12 semester hours.

AT 614 HISTORY AND PHILOSOPHY OF ART EDUCATION 3 s.h.

Considers art education in Europe, United States and Canada, designed to give the student background.

AT 654 INTRODUCTION TO ART THERAPY 3 s.h.

A survey of the concepts and theories, applications and procedures of Art Therapy. Consideration of selections of materials and media for varying diagnostic and therapeutic problems, rehabilitatory and psychiatric settings and limitations of the art therapist. Prerequisite is admission to graduate school. Basically the course will serve individuals with clinical backgrounds (psychology, social workers, child care, speech therapy, special education, art education, art therapy), and those with a primary identity in one or more of the arts.

AT 655 ART THERAPY SEMINAR

3 s.h.

Provides practical considerations in therapy to prepare student to enter a practicum experience. Prerequisite is Introduction to Art Therapy 654 or the equivalent.

AT 656 ART THERAPY PRACTICUM

6 s.h.

A professional supervisory team will guide the student in a semester experience in settings where they will practice art therapy. Discussion, analysis, planning and data gathering will be in the student's area of interest. Minimum required courses for the Art Therapy Degree are the prerequisites.

BIOLOGY

Requirements for Admission — To be admitted to the Biology Department, the applicant must have completed the requirements for a bachelor's degree from an accredited college or university which should include a major in biology, one year in inorganic chemistry, one semester of organic and one semester of biochemistry, one year of physics, and mathematics through one semester calculus or statistics. Applicants with undergraduate deficiencies may be required to register for appropriate courses

The Requirements for Candidacy for an MEd degree are — The satisfactory completion of 15 semester hours of graduate work, with at least eight hours in the biological sciences. For those students electing the thesis option, requirements are the same as those for MS students beginning with the second paragraph below. For those students electing the non-thesis option, requirements are the same as those for MS students beginning with the third paragraph below.

The Requirements for Candidacy for an MS degree are — The satisfactory completion of 15 semester hours of graduate work, with at least eight hours in core courses.

The selection of an adviser and a committee of at least two additional faculty members to guide the candidate in completing a tentative program and selecting a thesis problem.

An official application for admission to candidacy, including the tentative program which has been approved by the adviser, must be submitted to the Biology Department graduate committee.

Candidates for all degrees are expected to maintain an average of not lower than B. Continuance in the graduate program for those receiving two course grades below the minimum is contingent upon favorable review of the graduate committee.

MASTER OF EDUCATION IN BIOLOGY

Students working for this degree have two options, a non-thesis program with a 33 credit hour requirement and a thesis program with a 30 credit hour requirement. The only way in which these programs differ is in the credit hour requirement noted above and that the thesis is required for the 30 credit hour degree. Students working in either of these programs will complete the appropriate number of hours in accordance with the following requirements:

- I. Professional Development area (nine s.h.)
 - A. Humanistics Studies — three s.h. to be selected from FE 611, 612, and 613.
 - B. Behavioral Studies — three s.h. to be selected from EP 573, 576, 578, 580, 604, CE 639, and EX 631.
 - C. Research — three s.h. — GR 615 required of all students (both options).
- II. Specialization Core (six s.h.)
Six s.h. to be selected from BI 661, FE 515 and CM 600. Biology Practicum (BI 661) is strongly recommended.
- III. Subject Matter Concentration (15-18 s.h.)
Fifteen s.h. (for thesis program students) or 18 s.h. (for non-thesis program students) to be selected from BI 545 through BI 699, MI 500, BI 850, GS 607, and CH 651.

For description of FE courses, see section on FOUNDATIONS OF EDUCATION; for EP courses, EDUCATIONAL PSYCHOLOGY; for CE courses, COUNSELOR EDUCATION; for EX courses, SPECIAL EDUCATION; for CM course, COMMUNICATIONS MEDIA; for GS course, GEOSCIENCE; for CH course, CHEMISTRY.

For description of GR courses, see entry under "GENERAL SERVICE COURSES," page 41.

MASTER OF SCIENCE IN BIOLOGY

Students working for this degree will complete 32 semester hours of work in accordance with the following divisions:

- I. Core Courses — 18-20 s.h. BI 601 (Instrumentation), BI 602 (Biometry), BI 610 (Seminar) and BI 850 (two-four credits in thesis) are required courses. The remaining 10 hours of core credits include one morphology-taxonomy course (chosen from BI 546, 551, 575, 576, 578 and 611 through 625), and one physiology course (chosen from BI 553, 561, 652, 653, or 654), and one ecology course (chosen from BI 563, 631, 635, or 640).
- II. Elective Courses — 12-14 semester hours to be selected with the approval of the adviser from the 500 and 600 level Biology courses. (With the exception to BI 661) or from related science and mathematics courses.
- III. Resident Requirements for the MS — The candidate must take a minimum of 24 of the semester hours required for graduation at IUP.

IV. Research Requirements for the MS — Every candidate must present a research thesis on an original topic approved by the candidate's advisory committee. This is programmed as BI 850 (thesis) for two to four credits.

V. Requirements for Completion of the MS

- A. 1. All students in the MS program in the Biology Department must pass a comprehensive examination administered by the department graduate committee. The purpose of this examination is to assure that all of our graduates have a well proportioned knowledge of the field of biology. The examination will also help point out the student's major area of inadequate knowledge or training.
2. This examination is offered at a specific time twice each year. The student may signify intentions of taking the examination by informing the graduate committee.
3. The student should plan to take the entire exam in the second semester of full-time course work (or the equivalent). A second attempt, if necessary, should come in the student's third full-time semester. A third and final attempt is permitted only after petition to, and approval of the Graduate Committee.
4. This will be the only comprehensive examination for the Master of Science degree.
- B. After the thesis has been accepted in its final written form by the candidate's committee and The Graduate School, the candidate is expected to present a public seminar reporting the results of his/her research.

For descriptions of GR courses, see entry under "GENERAL SERVICE COURSES," page 41.

COURSE DESCRIPTIONS

In many courses in the Biology Department, additional laboratory time may be required beyond the regularly scheduled periods

BI 532 COMPARATIVE VERTEBRATE ANATOMY

Discussion of anatomy of representative vertebrates from a comparative point of view. Stresses major organizational changes observed in vertebrate history. Two hours lecture. 3 hours lab per week. Prerequisite: BI 120.

BI 546 DENDROLOGY

3 s.h.

Study of the woody plants as to their identification, distribution, ecology, culture, anatomy, physiology, mensuration and utilization.

BI 551 TAXONOMY OF PLANTS

3 s.h.

Includes collection, identification, and classification of vascular plant species with special emphasis on family characteristics and phylogeny. Prerequisite: Plant Biology.

BI 553 PHYSIOLOGY OF PLANTS

4 s.h.

A comprehensive study of physiological bases for organization and function of living plants. Current literature is emphasized. Prerequisite: Biochemistry. Closed to students with undergraduate Plant Physiology. BI 351

BI 561	GENERAL PHYSIOLOGY	4 s.h.
A molecular approach to quantitative analysis of function and coordination in living organisms. Emphasis is on chemical and physical principles operating at primary functional units. Prerequisites: course in Physiology, Biochemistry, Calculus. (Two hours lecture and four hours lab.)		
BI 563	LIMNOLOGY	3 s.h.
An investigation into the physical, chemical, and biological aspects of inland waters and their inter-relationships. Saturday or Sunday labs may be required. Prerequisite: Ecology.		
BI 572	RADIATION BIOLOGY	3 s.h.
Basic aspects of nuclear physics, phenomena of radioactive isotopes and biological effects and uses of such isotopes. Lab work utilizes instruments for detection and measurement of radioactive nuclides. Prerequisites: two years Biology, one year Physics, and General, Organic and Biochemistry.		
BI 575	MAMMALOGY	3 s.h.
General discussion of mammals emphasizing systematics, distribution, and structure-function modifications related to their evolution. A paper is required.		
BI 576	PARASITOLOGY	3 s.h.
The parasitic protozoa, flatworms and roundworms. Major emphasis upon species infesting man and includes their structure, physiology, ecology, life cycles and pathogenicity. Arthropods involved in parasite transmission included. Prerequisites: one year Biology, Vertebrate and Invertebrate Zoology.		
BI 578	MYCOLOGY	3 s.h.
The systematics, morphology, and physiology of fungi, with emphasis on economically important and experimentally useful Myxomycophyta and Eumycophyta. Not open to students with undergraduate BI 381 Mycology		
BI 585	MICROTECNIQUE	3 s.h.
Procedures involved in production of microscope slides. Techniques of preparing whole mounts, microtome sections and serial sections of both plant and animal materials.		
BI 597	INTRODUCTION TO ROCKY MOUNTAIN ECOLOGY	4 s.h.
Flora and fauna of each of the life zones described, collected, and identified. Takes place in Bridger-Teton National Forest, Wyoming. Tents, food horses, etc. are provided by professional outfitter. Offered only in the summer. No prerequisites.		
BI 601	INSTRUMENTATION	3 s.h.
Introduction to the variety of techniques and procedures of instrument-assisted data gathering appropriate to the biologist.		
BI 602	BIOMETRY	3 s.h.
The choice and application of standard, efficient, and practical statistical techniques for data analyses in common biological research situations.		
BI 610	BIOLOGY SEMINAR	1 s.h.
An opportunity to become acquainted with various areas of current research in biology. One hour meeting per week.		
BI 611	COMPARATIVE PLANT MORPHOLOGY	3 s.h.
Procedures, general principles and objectives of comparative plant morphology. Emphasis on relationships between morphology, taxonomy and experimental morphogenesis in vascular plants		

BI 620	PROTOZOOLOGY	3 s.h.
Common and representative genera of all groups of free-living protozoa. Emphasis is placed upon structure, physiology, ecology and life histories of these organisms. An independent research project is required		
BI 621	PRINCIPLES OF ANIMAL TAXONOMY	3 s.h.
Study of classification system and its application to identification of animals. Basic principles of taxonomy rules of nomenclature, a synoptic history of classification and the "old" and "new" taxonomy will be included. A taxonomic field study is required.		
BI 622	ADVANCED ORNITHOLOGY	3 s.h.
A detailed study of bird populations, behavior, and movement including the annual cycle Prerequisites: Identification by site and song of local birds.		
BI 623	ANIMAL MORPHOGENESIS	3 s.h.
Factors that influence and control the differentiation of organs, tissues, and cells. Emphasis is placed on experimental procedures and methods. Prerequisites: Embryology or Comparative Anatomy, Organic Chemistry or Biochemistry, and Genetics.		
BI 624	ADVANCED ENTOMOLOGY	3 s.h.
Insect morphology, including external and internal organization of different species of insects. Comparisons between species included. An independent research study and seminar presentation required		
BI 625	HERPETOLOGY	3 s.h.
A comprehensive survey of the classes Amphibia and Reptilia, including their classification, structure, origin, evolution, phylogenetic relationships, distribution, and natural history. Special emphasis is placed on the herpetofauna of Pennsylvania		
BI 631	PLANT ECOLOGY	3 s.h.
Nature and distribution of vegetation in relation to environmental factors. Field investigations of local plant communities constitute bulk of lab work. Prerequisite: Field Botany. Plant Taxonomy or general knowledge of local flora.		
BI 635	TAXONOMY AND ECOLOGY OF BACTERIA	3 s.h.
Isolation, cultivation, classification and ecology of major groups of bacteria. Special emphasis on principles of bacterial taxonomy and ecology. Prerequisite: Microbiology		
BI 640	ANIMAL ECOLOGY	3 s.h.
Effect of environmental factors on animals, animals as members of communities, their trophic relationships, their ecological distribution, population dynamics, and aspects of animal behavior. A field or lab problem is required		
BI 652	MICROBIAL PHYSIOLOGY	4 s.h.
Physiological reactions involved in growth, reproduction, and death of microbes. Energy production, substrate transport and metabolism and regulatory mechanisms. Prerequisites: Microbiology and Biochemistry		
BI 653	ANIMAL PHYSIOLOGY	4 s.h.
Digestion and molecular transport of nutrients, gaseous exchanges, excretion, muscular activity, and control by endocrine and neural elements. Prerequisite: Animal Biology		
BI 654	ENDOCRINOLOGY	4 s.h.
Phylogeny, embryology, micro-anatomy, and physiology of the endocrine tissues. Prerequisites: course in anatomy and physiology		

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| BI 661 | BIOLOGY PRACTICUM | 3 s.h. |
| Deals with methods and materials that will enable the secondary school biology teacher to teach more recent curricula and strategies. Emphasis on environmental and individual instruction methods will supplement the more conventional and traditional skills demanded of successful biology teaching. | | |
| BI 662 | MOLECULAR GENETICS | 3 s.h. |
| Study of chemical structure of the gene in relation to its molecular function in control of specific protein biosynthesis. Emphasis will be placed on genetic systems of bacteria, fungi, and viruses. Prerequisites: genetics, organic chemistry and biochemistry or permission of the instructor. | | |
| BI 663 | IMMUNOLOGY | 3 s.h. |
| Physical and chemical properties of antigens and antibodies, nature of antigen-antibody interactions, mechanism of antibody formation and immune reaction in disease. Prerequisites: Biochemistry and Microbiology. | | |
| BI 664 | PATHOGENIC MICROBIOLOGY | 3 s.h. |
| Study of disease caused by microorganisms with emphasis on human pathogens. Both epidemiology and aspects of host-parasite relationships. Prerequisite: Microbiology. | | |
| BI 681 | SPECIAL TOPICS | 1-4 s.h. |
| Content will vary, covering diverse topics in specific areas of biology. | | |
| BI 699 | INDEPENDENT STUDIES | 1-3 s.h. |
| Consists of independent research studies under guidance of an instructor. Maximum credit in any one area is six semester hours. Time and class hours will be arranged by instructor involved. Prerequisite: Permission of instructor. | | |
| MI 500 | PROBLEMS IN MARINE SCIENCE | 3 s.h. |
| Independent study for the advanced student in marine sciences. Topics are selected from areas offered by the Marine Consortium and studies are directed by the instructor in that area. Prerequisite: Consent of instructor. | | |

BUSINESS

The School of Business offers three separate graduate programs: The Master of Business Administration (MBA), the Master of Education in Business (M.Ed.), and the Master of Science in Business (M.S.).

MASTER OF BUSINESS ADMINISTRATION (MBA)

The Master of Business Administration program is intended to serve the needs of both junior and senior level business and industrial executives seeking additional knowledge and skills to do a more efficient job of problem solving and managerial decision making. It also serves the needs of students seeking advanced training in business management prior to entry into a business career. The program is offered on part-time or full-time basis.

Core I of the program consists of 10 courses (31 s.h.), that provides a foundation in the basic concepts and techniques used in today's business world.

Core II consists of ten graduate level courses or thirty semester hours. Of these, seven courses are required in the functional and applied areas of business. The remaining three courses are electives which may be concentrated in one functional area, such as Accounting, Finance, Marketing, Management Information Systems or Management, by those students wishing to develop an academic specialty within the broader field of business administration, or the electives may be taken from any combination of those areas or, with permission, from other related areas by those students wishing a business degree covering a broader range.

Normally the student with an undergraduate degree in business administration would either go directly to the Core II subjects or would have a minimal number of Core I subjects remaining.

However, a student with no undergraduate background in Business Administration would need to take more Core I classes. Therefore, for the student with no Business Administration background, completing both Core I and Core II will normally require two years of full-time study to achieve the MBA degree. However, for a student with a bachelor's degree in Business Administration, the requirements for the MBA can normally be completed in one year of full-time study.

If the student did not have these courses as an undergraduate, they may be taken at IUP by the student or, with prior permission, at some other institutions. In some cases, credit may be given for other, parallel educational experiences. For example, there are certain corporate training programs in computer languages that might be accepted in lieu of the introductory undergraduate computer course. In some instances, course credit may be given by examination for these prerequisite courses. Please contact the Director of Graduate Studies in Business for information concerning the prerequisite courses.

Students seeking enrollment in the MBA program or M.S. in Business program must take the Graduate Management Admission Test (GMAT) before being admitted to the program. Information about the GMAT can be obtained from the Educational Testing Services, Princeton, NJ 08540 or from the IUP Academic Services and Testing Center (Telephone 412-357-3050).

COURSE REQUIREMENTS FOR THE MBA DEGREE

Core I: 31 s.h. in the following undergraduate courses: AG 201, AG 202, FS 310, MK 320, AD 235, EC 122, MG 360, MA 121, FS 215, and FS 241. Students will be given credit for Core I, undergraduate prerequisite courses, taken at IUP or at other appropriate institutions with prior permission. Contact Director of Graduate Studies in Business to ascertain the appropriateness of such courses and to obtain permission to take courses at any other institutions. See IUP undergraduate catalog for course descriptions.

Core II: (a) 21 s.h. in the following graduate courses: AG 607*, EC 634, FS 601, FS 630, FS 640, MG 633, and MK 603.

- (b) 9 s.h. chosen from among the following elective courses:
- Accounting: AG 501, AG 512, AG 531, AG 600, AG 602, AG 603, AG 608
- Finance/MIS: FS 510, FS 520, FS 522, FS 550, FS 551, FS 570, FS 580, FS 602, FS 604, FS 631, FS 632, FS 635, FS 641, FS 642.
- Management/Marketing: MG 630, MG 631, MG 632, MG 635, MG 636, MG 642, MG 645, MK 521, MK 530, MK 531.
- Other 581/681 Special Topics courses offered by the AG, FS, MG and MK Departments, and other business related courses with the prior approval of the Director of Graduate Studies in Business

*Students with undergraduate concentrations in Accounting are not eligible for AG 607. See Director of Graduate Studies in Business for alternative Accounting course selections.

MASTER OF EDUCATION IN BUSINESS (M.Ed.)

The Master of Education in Business degree is designed to permit business teachers to broaden their understanding of business and to study teaching procedures in light of new experiences.

Business education teachers with appropriate prerequisites can earn, at the graduate level, certification in accounting, data processing, marketing, and distributive education while pursuing the Master of Education degree program.

Distributive education teachers seeking to broaden their background in marketing, merchandising, and management may emphasize these areas in the Master of Education degree program.

Individuals without an undergraduate degree in business may pursue graduate work leading to certification in Distributive Education.

Cooperative education certification may be earned by teachers holding a valid Pennsylvania teaching certificate or its equivalent.

Upon admission to the Graduate School, each student is assigned an adviser who will assist the student in scheduling his/her program of studies. Prior to admission to candidacy for the degree of Master of Education in Business, the student must take the Graduate Record Examination aptitude test. Information about this examination can be obtained from The Graduate School.

COURSE REQUIREMENTS FOR THE M.Ed. DEGREE

Students must complete 30 semester hours for the degree distributed as follows:

- I. Professional Development Area (nine s.h.)
 - A. Humanistic Studies (three s.h.) — One of the following: FE 611, FE 612, FE 613, or FE 514.

- B. Behavioral Studies (three s.h.) — One of the following: EP 604, EP 573, EP 576, EP 578, EP 580, CE 639, or EX 631.
- C. Research (three s.h.)
GR 615 Elements of Research

II. Specialized Core (nine s.h.)

AD 610, BE 650 and either BE 660 or BE 661 (NOTE: Students seeking certification in Distributive Education may substitute DE 510 or DE 513 for BE 660 or 661.)

III. Subject Area and/or Thesis (12 s.h.)

AD 850 (three s.h.) Thesis (optional) and/or any additional graduate courses listed in this catalog under AD, AG, BE, DE, FS, MK or MG. Other related courses may be allowed with the consent of the School of Business Director of Graduate Programs.

Courses in Specialized Core Area and Subject Area should be scheduled early in the student's program.

For description of FE courses, see section on FOUNDATIONS OF EDUCATION; for EP courses, EDUCATIONAL PSYCHOLOGY; for CE courses, COUNSELOR EDUCATION; for EX course, SPECIAL EDUCATION.

For description of GR courses, see entry under "GENERAL SERVICE COURSES."

MASTER OF SCIENCE IN BUSINESS (M.S.)

The Master of Science in Business degree is designed primarily for business people, industrial, personnel and government employees who are interested in furthering their academic career through study in Business Administration. The program is designed to allow these people to specialize in an area of Business Administration and to take more courses in their chosen specialty than would be allowed in the MBA program. In the MS in Business program such students may elect to take four courses or forty percent of their graduate course work in the area of their chosen specialization.

In order to familiarize the student with the full range of business activities, the student is required to take a series of undergraduate prerequisite courses identical to the "Core I" requirements or undergraduate prerequisite courses that are required by the MBA program. If the student did not have these courses as an undergraduate, they will be taken at IUP, or, with prior permission, they may be taken at some other accredited institutions. In some instances, course credit may be given by examination for these prerequisite courses. Please contact the Director or Graduate Studies in Business for information concerning the prerequisite courses.

In addition, the prospective MS in Business student will submit a written statement explaining their career goals and the area of specialization or functional field where they wish to concentrate to the Director of Graduate Studies in Business. The Director and the student will develop a program tailored for the student's specific needs, to include a listing of courses to be taken for completion of the degree requirements.

COURSE REQUIREMENTS FOR THE M.S. DEGREE

I. Undergraduate Prerequisite Courses: 31 s.h. in the following undergraduate courses:

AG 201, AG 202, FS 310, MK 320, AD 235, EC 122, MG 360, MA 121, FS 215, and FS 241.

Students will be given credit for undergraduate prerequisite courses taken at IUP or at other appropriate institutions with prior permission. Contact Director of Graduate Studies in Business to ascertain the appropriateness of such courses and to obtain permission to take courses at any other institutions. See IUP undergraduate catalog for course descriptions.

II. Graduate Courses (30 s.h. distributed as follows):

A. Three (3) Required Business Courses (9 s.h.): AG 607, AD 610, and FS 640.

B. Business Elective Courses (12 to 15 s.h.) from the following list: AG 501, AG 512, AG 531, AG 600, AG 602, AG 603, AG 608, AD 512, AD 515, AD 612, AD 614, AD 632, AD 633, AD 634, AD 670, FS 510, FS 520, FS 522, FS 550, FS 551, FS 570, FS 601, FS 602, FS 604, FS 630, FS 631, FS 632, FS 635, FS 641, FS 642, MK 521, MK 530, MK 531, MK 600, MK 601, MK 603, MG 630, MG 631, MG 632, MG 633, MG 635, MG 636, MG 642, MG 645.

Other graduate level courses closely related to the student's career plans may be taken as electives. Prior permission of the Director of Graduate Studies in Business is required.

C. Research Area (6-9 s.h.):

1. GR 516 or FS 601

2. FS 604 or MK 521

3. 850, Thesis in appropriate department in School of Business if elected. Students not electing a thesis will take an additional elective course as prescribed in their course of studies by the Director of Graduate Studies in Business.

COURSE DESCRIPTIONS

Accounting

AG 501 ADVANCED PRINCIPLES OF ACCOUNTING 3 s.h.

Study of business combinations and consolidations as well as accounting problems of specialized nature such as goods on consignment, installment sales, receivership accounts, agency and branch accounting. Prerequisite: AG 302 or equivalent (nine semester hours of accounting).

AG 512 ADVANCED COST ACCOUNTING 3 s.h.

Theory, preparation and use of budgets, analysis of cost variances, direct costing, and extensive analysis of various cost-control and profit-planning programs. Prerequisite: AG 311.

AG 531 AUDITING 3 s.h.

A study of auditing theory and practical application of auditing standards and procedures to the verification of accounts and financial statements, working papers, and audit reports. Prerequisite: AG 301.

AG 581	SPECIAL TOPICS IN ACCOUNTING	3 s.h.
Covers advanced or exploratory topics within the discipline. Specific content developed by instructor. Content will vary depending upon the interests of instructor and students with instructor choosing specific topics. May be repeated by specific approval. Prerequisite: Permission of the instructor and Director of Graduate Studies in Business.		
AG 600	ACCOUNTING SYSTEMS	3 s.h.
Accounting principles applied to constructing accounting systems. Special attention is given to problems of management as they relate to accounting systems by developing a system to give management the information desired for effective operation of business. Prerequisite: AG 301.		
AG 602	ADVANCED TAX ACCOUNTING	3 s.h.
Developes further knowledge of federal income tax laws as they apply to corporations, estates, and trusts. Federal estate tax and gift tax are also explored. Prerequisite: AG 521.		
AG 603	FINANCIAL STATEMENTS ANALYSIS	3 s.h.
Detailed analysis and interpretation of financial statements using the various purposes and coverage of the accounting principles underlying the data to be analyzed. Prerequisite: AG 301.		
AG 607	MANAGEMENT ACCOUNTING	3 s.h.
Designed for management personnel who are not accountants but need to understand the accounting process and the use of accounting information by management in making decisions and in performance evaluation. Prerequisite: AG 202. Not open for credit for students with constructive credit for AG 311.		
AG 608	SEMINAR IN ACCOUNTING ISSUES	3 s.h.
Designed to offer students the opportunity to explore the conceptual framework for accounting and reporting and to study, research, and debate various controversial issues of current interest to the accounting profession as well as any other accounting area of mutual interest to them and their instructor. The theme of the seminar may be different every time it is offered. Prerequisite: AG 302 or instructor's permission.		
AG 681	SPECIAL TOPICS IN ACCOUNTING	3 s.h.
Covers advanced or exploratory topics within the discipline. Specific content developed by instructor. Content will vary depending upon the interests of instructor and students with instructor choosing specific topics. May be repeated by specific approval. Prerequisite: Permission of the instructor and Director of Graduate Studies in Business.		
AG 699	INDEPENDENT STUDY IN ACCOUNTING	1-3 s.h.
Individual research and analysis of contemporary problems and issues in a concentrated area of study under the guidance of a senior faculty member. Prerequisite: Consent of Instructor, Departmental Chairperson, and Dean, School of Business.		
AG 850	THESIS	1-6 s.h.
For students writing the thesis, AG 850 should be scheduled for the semester in which the student plans to complete his/her work. The thesis may be a non-committee thesis (1-3 s.h.), with one faculty member serving as the student's adviser; or a committee thesis (4-6 s.h.), for which the student's adviser, two additional faculty members, Director of Guidance Programs, and/or the representative of the Dean of the School of Business may constitute the committee.		

Administrative Services and Business Education

AD 512 ADMINISTRATIVE OFFICE SERVICES 3 s.h.

Presentation of fundamental principles and practices used in the development of an office. Specialized areas such as systems analysis work simplification, forms design, word processing, office machines and equipment, records management, office design and layout, office location and physical environment, office supervision, office manuals, and development of office personnel will be discussed.

AD 515 RECORDS ADMINISTRATION 3 s.h.

Development of the principles of records administration including creation, use, maintenance, and destruction. Storage facilities, records classification, forms analysis, control of records, as well as micro-image systems will be discussed.

AD 610 BUSINESS COMMUNICATIONS AND REPORT WRITING 3 s.h.

Study and comparison of effective communications. Emphasis is on positive approach, clear statements, good form and structure. Organization and preparation of reports used in education, business, and government. Techniques of collecting, interpreting, and presenting information useful to executives.

AD 612 OFFICE ORGANIZATION AND MANAGEMENT 3 s.h.

Duties and responsibilities of office manager, principles of practical office management and their application. Includes survey and analysis development of manuals and their use, selection, training, pay and promotion of office employees, controlling expenses and measuring office efficiency, quality and quantity standards, purchase and use of equipment and report writing.

AD 614 EXECUTIVE SECRETARIAL TRAINING 3 s.h.

Stresses application of secretarial skills and knowledge and importance of good human relations in offices. Develops methods of complementing secretarial training so that high school graduates may become competent, proficient, and well-adjusted secretaries.

AD 632 CURRENT BUSINESS ECONOMIC PROBLEMS 3 s.h.

Provides opportunity for students to gain insights into relationships of business to many facets of society, impact of major societal groups upon business, and nature of obstacles that businessmen face in day-to-day operations. Review and analysis of basic economic concepts and principles will serve as a basis for study of selected economic problems of current interest and concern to business and society.

AD 633 CASE PROBLEMS IN BUSINESS LAW 3 s.h.

Deals with solution of case problems as applied to various topics in the field of business law. Prerequisite: AD 235 or equivalent.

AD 634 CONSUMER ECONOMIC PROBLEMS 3 s.h.

Program for the education of intelligent consumers in how to gain the maximum satisfaction from goods and services. An effort will be made to develop an appreciation of the problems of the producer and distributor as well as the consumer.

AD 670 ECONOMIC BACKGROUNDS OF BUSINESS 3 s.h.

Overview of economic environment in which business and other agencies operate. Students will gain a broad perspective of business operation through such topics as business organization and management, consumption of goods, business risks, business cycle, budgeting and investments. Not open to business majors, but is designed as a general studies for other programs.

AD 699 INDEPENDENT STUDY IN ADMINISTRATIVE SERVICES 1-3 s.h.

Individual research and analysis of contemporary problems and issues in a concentrated area of study under the guidance of a senior faculty member. Prerequisite: Consent of Instructor, Departmental Chairperson, and Dean, School of Business.

BE 650 PRINCIPLES AND PROBLEMS OF BUSINESS EDUCATION 3 s.h.

Surveys basic principles and practices of business education. Among the topics considered are: history of the high school business program, purposes, attitudes of management and labor toward education, relationships of general education to business education, and trends in the field

BE 660 IMPROVEMENT OF INSTRUCTION IN SECRETARIAL COURSES 3 s.h.

Provides business teachers with a working philosophy and practical approach to teaching of secretarial subjects — shorthand, typewriting, transcription, and office practice. Teaching procedures basic to development of vocational proficiency in shorthand, typewriting, transcription, and office practice including: content, methods, teaching aids, available instructional materials, measurement of skills, and standards of achievement

BE 661 IMPROVEMENT OF INSTRUCTION IN ACCOUNTING AND BASIC BUSINESS COURSES 3 s.h.

Problems and techniques in teaching accounting and basic business courses. Including objectives, place and purpose of accounting and basic business courses, curricular organization, teaching techniques, instructional materials, resource materials, course standards, testing, and evaluation. For experienced or prospective high school vocational-technical school, and community college teachers of accounting, general business, consumer economics, business mathematics, economics, and business principles and management

BE 676 SPECIAL STUDIES IN BUSINESS AND DISTRIBUTIVE EDUCATION 1-6 s.h.

Special topics in business and distributive education. Topics will be announced well in advance of registration.

BE 699 INDEPENDENT STUDY IN BUSINESS EDUCATION 1-3 s.h.

Individual research and analysis of contemporary problems and issues in a concentrated area of study under the guidance of a senior faculty member. Prerequisite: Consent of Instructor, Departmental Chairperson, and Dean, School of Business.

BE 850 THESIS 1-6 s.h.

For students writing the thesis. BE 850 should be scheduled for the semester in which the student plans to complete his/her work. The thesis may be a non-committee thesis (1-3 s.h.), with one faculty member serving as the student's adviser; or a committee thesis (4-6 s.h.), for which the student's adviser, two additional faculty members, Director of Graduate Programs, and/or the representative of the Dean of the School of Business may constitute the committee

DE 510 METHODS & EVALUATION IN DISTRIBUTIVE EDUCATION I 3 s.h.

To acquaint prospective teacher-coordinators with objectives of vocational distributive education, including state plan and curriculum. To understand programs in organizing, administering, and supervising a complete cooperative program.

DE 513 METHODS & EVALUATION IN DISTRIBUTIVE EDUCATION II 3 s.h.

Acquaints students with basic principles of group and individual instruction in various subject matter areas, as well as methods of presentation. Students prepare unit plans, lesson plans, demonstrations, and evaluations. Prerequisite: DE 510 or DE 413.

DE 620 RETAIL ORGANIZATION AND MANAGEMENT 3 s.h.

Directed toward problems of retail management includes present-day trends in retailing, personnel management, merchandise control, pricing, promotion, services, accounting, and expense control.

DE 640 INTERNSHIP IN OFFICE AND DISTRIBUTIVE OCCUPATIONS 4 s.h.

Students who do not have extensive business experience are given the opportunity to work full-time for six weeks during the summer in a business position under supervision. Evening seminars are held weekly to discuss problems related to work experience program. A written report of the experience will be required.

DE 653 ADMINISTRATION AND SUPERVISION OF VOCATIONAL EDUCATION 3 s.h.

An introductory course in administration and supervision of vocational education. Historical background and problems connected with budgeting procedures and practices, teacher qualifications, certification, selection and assignments, in-service programs, rating and evaluating vocational techniques, classroom and personnel supervision, vocational teachers' conferences, curriculum construction and revision, selection and maintenance of equipment, establishing and using standards of achievement, guidance selection, placement and follow-up programs will be covered in this course.

DE 654 COOPERATIVE VOCATIONAL EDUCATION 3 s.h.

To develop administrative procedures necessary for planning, organizing, and coordinating cooperative vocational education programs. Major topics include historical background of cooperative vocational education programs, program development, supervision, public relations, the teacher coordinator and the job, labor laws governing such a program, and desired educational outcomes. Leads to Cooperative Education Teacher certification. Prerequisite: DE 653.

DE 699 INDEPENDENT STUDY IN DISTRIBUTIVE EDUCATION 1-3 s.h.

Individual research and analysis of contemporary problems and issues in a concentrated area of study under the guidance of a senior faculty member. Prerequisite: Consent of Instructor, Departmental Chairperson, and Dean, School of Business.

FINANCE/MIS

FS 510 FINANCIAL INSTITUTIONS AND MARKETS 3 s.h.

Review of entire structure of financial institutions, money and capital markets, of which the business enterprise is both a supply and demand factor, and structure and dynamics of interest-rate movements. Prerequisites: EC 325, FS 324.

FS 520 INVESTMENT ANALYSIS 3 s.h.

Integrates the work of the various courses in the finance areas and familiarizes the student with the tools and techniques of research in the different areas of investments. Prerequisites: AG 301, FS 310, FS 324.

FS 522 SEMINAR IN FINANCE 3 s.h.

A course primarily for the senior Finance major, covering topics in all areas of finance by using recent articles, cases, discussions, speakers and a financial simulation game. Prerequisites: FS 310, FS 320, FS 324.

FS 550	DATA BASE THEORY AND APPLICATION	3 s.h.
The analysis of data structures and data base, management systems and their implementation in COBOL. Prerequisite: CO 220 or FS 352, and FS 350.		
FS 551	SYSTEMS ANALYSIS	3 s.h.
Develops understanding of concepts and techniques, involving conventional and structured approaches to analyzing problems of business information systems, systems definition feasibility, as well as quantitative and evaluative techniques of business information systems analysis. Prerequisite: FS 352 or CO 220.		
FS 570	SYSTEMS DESIGN	3 s.h.
Students learn tools and techniques for design of a business system. Along with classroom discussions of principles and techniques for analyzing, designing, and constructing the system, students will formulate system teams to analyze the problems of an existing business information system, to design an improved system and to control implementation of new system. Prerequisite: FS 451/551, FS 450/550.		
FS 580	DISTRIBUTED BUSINESS INFORMATION SYSTEMS	3 s.h.
Prerequisite: FS 451/551 or by instructor's permission.		
FS 581	SPECIAL TOPICS IN FINANCE OR MANAGEMENT INFORMATION SYSTEMS	3 s.h.
Covers advanced or exploratory topics within the discipline. Specific content developed by instructor. Content will vary depending upon the interests of instructor and students with instructor choosing specific topics. May be repeated by specific approval. Prerequisite: Permission of the instructor and Director of Graduate Studies in Business.		
FS 601	QUANTITATIVE METHODS	3 s.h.
Introduction to the concepts and methods of scientific problem solving in management. Students will learn to formulate mathematical models of complex decision problems and to solve these problems using quantitative methods. Topics covered include linear programming, inventory models, network models, waiting line models, and simulation. Prerequisite: FS 215.		
FS 602	SEMINAR IN MANAGEMENT SCIENCE	3 s.h.
Builds upon basic concepts developed in FS 601 dealing with the theory and application of mathematical models in an organizational environment. This course is intended student who will actually be working with such models in his/her future occupation. Topics to be covered include: more advanced methods of linear programming, non-linear programming, dynamic programming, and simulation. Prerequisites: FS 601, MA 121, MA 122.		
FS 604	SEMINAR IN METHODOLOGY OF BUSINESS RESEARCH	3 s.h.
Designed to help students acquire a basic understanding of the research process and a knowledge of the research methods needed in the design and execution of a competent applied behavioral research. Emphasis will be on measurement and scaling, survey research, and data analysis. Prerequisite: GR 516 or FS 601.		
FS 630	FINANCIAL MANAGEMENT	3 s.h.
An extension of basic managerial finance, dealing with the theory and practice of analyzing companies, financial planning, capital budgeting, management of working capital, and obtaining funds for the corporation. Prerequisite: FS 310.		
FS 631	ADVANCED FINANCIAL MANAGEMENT	3 s.h.
Purpose is to provide the business manager with various approaches and methods for solving capital budgeting decisions and evaluating investment proposals. Topics will include: capital budgeting techniques and applications, decisions under certainty and uncertainty, capital rationing and methods of evaluating and classifying investments. Prerequisites: FS 630.		

FS 632	SEMINAR IN FINANCE	3 s.h.
Covers topics in all areas of finance by using recent articles, cases, discussions, speakers, and a finance simulation game. Designed to bring together all aspects of finance. Prerequisites: FS 630.		
FS 635	PRINCIPLES OF INVESTMENTS IN SECURITIES	3 s.h.
Introduces many forms of investment possibilities which exist. Attention is given to operation of stock markets, concepts and terminology of investing, mutual funds and their function, investment clubs and problems involved in making investments through brokers, bankers, and stock promoters.		
FS 640	MANAGEMENT INFORMATION SYSTEMS	3 s.h.
Introduces techniques involved in organizing computer-based management information systems and the concepts of systems analysis and design including problem definition, data gathering, information analysis, presentation techniques, implementation planning, systems control, and documentation is presented. Relationship between these techniques and the management of modern business organization is stressed. Exercises and case studies used to develop student's ability to use the various systems methods presented in solving informational problems of modern business. Prerequisites: AG 202, FS 241 or equivalent.		
FS 641	BUSINESS DATA PROCESSING I	3 s.h.
Covers the theory operation of remote computer terminals. The BASIC language is used to write computer programs for Business Mathematics and Bookkeeping problems for the Business Education and Distributive Education teacher. Interactive programs utilizing the computer will be used for this training. Not open for students with credit for FS 451/551.		
FS 642	BUSINESS DATA PROCESSING II	3 s.h.
Develop the principles of COBOL language programming with specific applications for the teachers of Business and Distributive Education. The course builds upon the basic concepts of data processing developed in FS 641. Special emphasis placed on computer-based instruction and programmed instruction as used with the remote terminals. The value of library programs will be demonstrated. Prerequisite: FS 641 or equivalent. Not open for students with credit for FS 470/570.		
FS 681	SPECIAL TOPICS IN FINANCE OR MANAGEMENT INFORMATION SYSTEMS	3 s.h.
Covers advanced or exploratory topics within the discipline. Specific content developed by instructor. Content will vary depending upon the interests of instructor and students with instructor choosing specific topics. May be repeated by specific approval. Prerequisite: Permission of the instructor and Director of Graduate Studies in Business.		
FS 699	INDEPENDENT STUDY IN FINANCE OR MANAGEMENT INFORMATION SYSTEMS	1-3 s.h.
Individual research and analysis of contemporary problems and issues in a concentrated area of study under the guidance of a senior faculty member. Prerequisite: Consent of Instructor, Departmental Chairperson, and Dean, School of Business.		
FS 850	THESIS	1-6 s.h.
For students writing a thesis, FS 850 should be scheduled for the semester in which the student plans to complete his/her work. The thesis may be a non-committee thesis (1-3 s.h.), with one faculty member serving as the student's adviser; or a committee thesis (4-6 s.h.), for which the student's adviser, two additional faculty members, Director of Graduate Programs, and/or the representative of the Dean of the School of Business may constitute the committee.		

Management

- MG 630 MANAGEMENT THEORY** 3 s.h.
 Study of development, nature, and meaning of basic functions of management. Emphasis will be placed upon functional activities of an organization at all levels of management and the application of these principles. Prerequisite: MG 360.
- MG 631 MANAGEMENT DEVELOPMENT AND TRAINING** 3 s.h.
 A survey of the major aspects, trends, and methodologies in management development and training as these specializations are being practiced in the enterprises in the advanced western nations. Prerequisite: MG 360.
- MG 632 SEMINAR IN PERSONNEL** 3 s.h.
 Designed to offer the MBA student the opportunity to research, study, and discuss various theories, principles, concepts and issues of current interest to business and personnel managers. The case method will be emphasized and the focus or theme of the seminar may be different each time it is offered. Prerequisite: MG 360.
- MG 633 ORGANIZATIONAL ANALYSIS** 3 s.h.
 An integrative course oriented toward an empirical analysis of the phenomena and theories of large, complex, formal organizations. Intergroup phenomena are also treated as they pertain to the larger organization. Special study is made of the organization as an economic, social decision-making, bureaucratic and political system. The analysis and design of organizations is viewed from a number of perspectives including classical theory and case analysis to illustrate and extend the major topics of the course. Prerequisite: MG 360.
- MG 635 SEMINAR IN MANAGEMENT AND ORGANIZATIONAL LEADERSHIP** 3 s.h.
 Studies of theory and research in the leadership of groups and organizations with application to the management fields of business, industry and labor. The debate, research, and study of controversial leadership issues of current interest to management and preparation of a research paper by the student in his/her occupational interest area is required. Prerequisite: MG 311 and Permission of Department Chairperson and/or Instructor.
- MG 636 THE EVOLUTION OF MANAGEMENT** 3 s.h.
 This course examines the backgrounds, roles and influences of major contributors and analyzes the various trends and movements in management thought. Prerequisite: MG 360.
- MG 642 HUMAN RELATIONS IN BUSINESS** 3 s.h.
 Study of human motivations and their constructive application to all aspects of business. Psychological basis of human relations will be developing as it applies in the business world. Major topics include employer-employee relations, labor relations, stockholder relations, customer relations, community relations and public relations. Prerequisite: MG 360.
- MG 645 CASE PROBLEMS IN BUSINESS HUMAN RELATIONS** 3 s.h.
 Application of principles of personnel management in solution of problems in human relations. Students will be required to solve realistic problems in human relations found at all echelons of management. Emphasis will be placed on actual problems encountered in day-to-day work activities. Prerequisite: MG 642 or equivalent.
- MG 681 SPECIAL TOPICS IN MANAGEMENT** 3 s.h.
 Covers advanced or exploratory topics within the discipline. Specific content developed by instructor. Content will vary depending upon the interests of instructor and students with instructor choosing specific topics. May be repeated by specific approval. Prerequisite: Permission of the instructor and Director of Graduate Studies in Business.

MG 699 INDEPENDENT STUDY IN MANAGEMENT 1-3 s.h.

With the approval of the department, students will select one or more topics of critical importance in the field and will meet with faculty for independent reading, analysis, and evaluation. (Prerequisites: approvals of department chairperson and Director of Graduate Programs).

MG 850 THESIS 1-6 s.h.

For students writing the thesis, MG 850 should be scheduled for the semester in which the student plans to complete his/her work. The thesis may be a non-committee thesis (1-3 s.h.), with one faculty member serving as the student's adviser, or a committee thesis (4-6 s.h.), for which the student's adviser, two additional faculty members, Director of Graduate Programs, and/or the representative of the Dean of the School of Business may constitute the committee.

Marketing

MK 521 MARKETING RESEARCH 3 s.h.

Research procedures and techniques applicable to problem solving in the marketing field. Critical analysis of research techniques with considerable emphasis placed on the use of information gathered. Prerequisite: MK 320.

MK 530 INTERNATIONAL MARKETING 3 s.h.

International marketing is analyzed, with consideration given to the significance of government regulation, organization structures of export and import enterprises, and credit policies. Prerequisite: MK 321.

MK 531 INDUSTRIAL MARKETING 3 s.h.

Considers major activities involved in marketing of industrial goods and services. Prerequisite: MK 320.

MK 600 MARKETING 3 s.h.

Study of risks, costs, and methods of distribution including analysis of such problems as research, competition, pricing, and laws in marketing goods from manufacturer to producer to consumer. Prerequisite: MK 320.

MK 601 SALES PROMOTION AND ADVERTISING 3 s.h.

Basic principles of sales promotion and advertising together with consideration of the major problems encountered in management of activities. Emphasized determination of basic promotional strategy, selection of advertising media; determining advertising appropriations; and, advertising research. Prerequisite: MK 320.

MK 603 MARKETING MANAGEMENT 3 s.h.

An analytical and quantitative approach to decision-making the planning, development, implementation and control of marketing program. Prerequisite: MK 320.

MK 681 SPECIAL TOPICS IN MARKETING 3 s.h.

Covers advanced or exploratory topics within the discipline. Specific content developed by instructor. Content will vary depending upon the interests of instructor and students with instructor choosing specific topics. May be repeated by specific approval. Prerequisite: Permission of the instructor and Director of Graduate Studies in Business.

MK 699 INDEPENDENT STUDY IN MARKETING 1-3 s.h.

With the approval of the department, students will select one or more topics of critical importance in the field and will meet with faculty for independent reading, analysis, and evaluation. (Prerequisites: approvals of department chairperson and Director of Graduate Programs.)

MK 850 THESIS

1-6 s.h.

For students writing the thesis, MK 850 should be scheduled for the semester in which the student plans to complete his/her work. The thesis may be a non-committee thesis (1-3 s.h.), with one faculty member serving as the student's adviser; or a committee thesis (4-6 s.h.), for which the student's adviser, two additional faculty members, Director of Graduate Programs, and/or the representative of the Dean of the School of Business may constitute the committee.

CHEMISTRY

The Chemistry Department offers three different degree programs on the master's level: the Master of Education, Master of Science, and the Master of Arts degrees in chemistry.

The Master of Education program is designed for the secondary school teacher, affording the teacher the opportunity to gain more knowledge of chemistry and keep abreast of a rapidly changing field. The major emphasis is on subject matter. The student may enroll on either a full- or part-time basis.

The Master of Science degree is for the chemist who intends to pursue further graduate work leading to a PhD or who intends to work as a professional chemist and desires to become more competent in chemistry. This degree is research oriented and successful completion of an experimental thesis is required. Also two consecutive semesters of residency are required.

The Master of Arts degree is designed to meet the needs of the chemist who is currently a full-time employee of the chemical or academic institution and who wishes strengthening in those areas relevant to the professional position. The emphasis here is on course work.

Four core courses, one in each of the areas of inorganic, organic, analytical, and physical chemistry, are required in the MS and MA programs.* Beyond this point the programs separate with the MS and MA student taking more specialized work in chemistry along with an experimental research problem. The MEd candidate will take broadening courses which increase the effectiveness of a teacher. The MA candidate will take more specialized work in chemistry and will be encouraged to take courses outside the sciences if they are relevant to the particular area of employment.

General Admissions Requirements — Students should have completed one year each of general chemistry, analytical chemistry, organic chemistry, physical chemistry,** general physics, and calculus. Students wishing to specialize in biochemistry should also have had an undergraduate course in biochemistry. Students deficient in the above areas of study may also be admitted provided these deficiencies are made up concurrently with the student's graduate studies.

The general requirements for admission to candidacy for a master's degree are discussed on page 25 of the bulletin.

*An exception to this is afforded the student wishing to specialize in biochemistry.

**Only one semester of physical chemistry is required for education majors.

MASTER OF ARTS IN CHEMISTRY

- I. Industrial/Teaching Experience: Before the degree of MA in chemistry can be granted the applicant must have had three years of full-time employment in an approved area of chemistry. Only those years of employment acquired after obtaining the bachelor's degree may be counted. This experience meets the University residency requirements.
- II. Course requirements include 14 hours in the following: CH 540, 600*, 610, 620, and 630.
- III. Course electives (10-16 s.h.) — Any graduate level courses selected from the natural sciences and mathematics with the permission of the candidate's adviser. Special permission from the Chemistry Department's Graduate Committee will be required for courses outside the sciences.
- IV. Thesis Requirements (zero, two, or four s.h.):
The student has three options:
 - A. Thesis not required — a total of 30 s.h. in suitable courses being acceptable.
 - B. No-Committee Thesis (CH 850-two s.h.) — Refer to page ___, for the steps in satisfying the research requirement for submitting a "Two-Hour, No-Committee Thesis."
 - C. Committee Thesis (Ch 850-four s.h.) — If the candidate is doing research as part of the full-time employment, the research may be submitted as a thesis, provided approval is given in advance by the employer, and the Chemistry Graduate Committee. The candidate's employment supervisor may serve as an ex-officio member of the thesis committee.

*The MA candidate is not required to attend all of the day time seminars, but is required to present two seminars and is expected to attend the evening seminars.

MASTER OF EDUCATION IN CHEMISTRY

Students working for this degree will complete a minimum of 30 semester hours of work in accordance with the following division:

- I. Subject Area and/or Thesis — 15-18 s.h.
 - A. Elective Chemistry Courses — 11-18 s.h. of work selected from CH 500 and CH 600 level courses.
 - B. Thesis — zero-four s.h. After consultation with the adviser, the student may choose:
 1. No thesis (if the student chooses this option he/she must earn a minimum of 18 s.h. in A above.)
 2. A no-committee thesis — CH 850-two s.h.
 3. A committee thesis — CH 850-four s.h.

- II. Professional Development Area — nine s.h.
 - A. Humanistic Studies — three semester hours in one course selected from the following: FE 611, 612, 613, or 514.
 - B. Behavioral Studies — three s.h. in one course selected from the following: EP 604, 573, 576, 578, 580, CE 639, or EX 631.
 - C. Research — three s.h. required of all students GR 615.

- III. Specialization Core — six s.h. — CH 505 and one of the following courses: FE 515, CM 600, or CH 605.

For description of FE courses, see section on FOUNDATIONS OF EDUCATION; for EP courses, EDUCATIONAL PSYCHOLOGY; for CE course, COUNSELOR EDUCATION; for EX course, SPECIAL EDUCATION; for CM course, COMMUNICATIONS MEDIA.

For description of GR courses, see entry under "GENERAL SERVICE COURSES," page 41.

MASTER OF SCIENCE IN CHEMISTRY

- I. Residence Requirements: The student shall be in residence a minimum of two consecutive semesters of full-time work. Students working as graduate assistants and/or making up deficiencies can expect to be in residence for at least two years.

- II. Course Requirements: For those specializing in analytical, inorganic, organic, or physical chemistry:

- A. Required Courses (15 s.h.): The four core courses of analytical, CH 620; inorganic, CH 610; organic, CH 630; and physical, CH 540, and one additional three hour course designated by a chemistry 600 number selected from one of the four areas of analytical, inorganic, organic, or physical chemistry.

- B. Electives (six s.h.)

The electives may be selected from the areas of chemistry, physics, biology, and mathematics by the student with the advice and approval of the adviser.

CH 500, Special Studies, can provide a maximum of three semester hours toward the 30 semester hours necessary for the degree.

- III. Course Requirements: For those specializing in biochemistry

- A. Required Courses (12 s.h.), including CH 646, 623, 630, and BI 662.
- B. Electives (at least nine s.h.), including at least one of the following: BI 561, 553, 652, 653, or 654 and any graduate courses in the natural sciences or mathematics mutually agreed upon by the student and adviser.

- IV. Research and Thesis Requirements:

- A. The research work must lead to an acceptable thesis, approved by the student's adviser and supervisory committee, and defended in a final oral examination.
- B. Seminar — two s.h. required in CH 600.
- C. CH 690 for at least three hours.
- D. CH 850 Thesis — four s.h., taken during the term in which the student is writing the MS thesis.

For description of BI courses, see section on BIOLOGY.

COURSE DESCRIPTIONS

General

CH 500	SPECIAL STUDIES	1-6 s.h.
Intensive survey of literature in a particular area as well as individual instruction on recent advances in chemical instrumentation, methods of research, and specialized subject areas. To be arranged with instructor.		
CH 502	CHEMISTRY IN MANUFACTURING PROCESSES	3 s.h.
A course on the applications of chemistry to manufacturing processes. Lecture and field trips. Lecture — three hours.		
CH 503	GLASSBLOWING TECHNIQUES	1 s.h.
Introduces science student to techniques necessary for construction and modification of scientific glass apparatus. Two hours lecture instruction.		
CH 505	NEW APPROACHES TO TEACHING HIGH SCHOOL CHEMISTRY	3 s.h.
Chem Study and C.B.A. approaches will be investigated. Individualization of chemistry and application of various teaching materials and techniques used in individualizing chemistry. Environmental chemistry and other relevant topics to better understand the chemical basis of our current environmental problems. Four hours lecture/laboratory.		
CH 576	RADIOCHEMISTRY	3 s.h.
Basic aspects of nuclear structure, phenomena of radioactive isotopes and chemical effects on such isotopes. Concurrent lab work utilizing instruments for detection and measurement of radioactive nuclides used in chemical experimentation. Four hours lecture/laboratory.		
CH 600	SEMINAR	1 s.h.
A study of modern chemical research and research techniques. Scientific communication, including the role of the science laboratory in research. The student will present one oral report. Lecture — one hour.		
CH 605	EXPERIMENTAL TECHNIQUES IN CHEMISTRY	3 s.h.
Experimentation, observation and application of scientific concepts. Classroom and lecture demonstrations will be prepared, presented and evaluated by students and instructor. Prerequisites: Chemistry I, II, Physics I, II. Four hours lecture/laboratory.		
CH 633	CHEMICAL LITERATURE	3 s.h.
Periodicals, encyclopedias, handbooks, abstracting journals, and other sources dealing with various divisions of chemistry will be studied. Students are required to conduct a literature search on a selected topic. Lecture — three hours.		
CH 690	RESEARCH	1-6 s.h.
Laboratory and literature investigation of the student's thesis problem done under the direction of a faculty member.		
Within the first 15 hours of course work, the student must schedule at least one credit of research for which the student performs the literature review and writes a research proposal.		
CH 699	INDEPENDENT STUDY	1-6 s.h.
Available to students who seek to deepen their knowledge in some specific aspect of chemistry. The student must discuss the nature of the independent study with a faculty member having expertise in the area prior to registration. Special attention to development of new ideas and new ways of presenting scientific principles.		

CH 850 THESIS 2 or 4 s.h.

For students writing the thesis. Should be scheduled for the semester in which the student plans to complete work. May be a non-committee thesis (2 s.h.) with one faculty member serving as adviser; or a committee thesis (4 s.h.), for which the student's adviser, two additional faculty members and the Dean of the School of Natural Sciences and Mathematics constitute the committee.

Inorganic

CH 512 INORGANIC PREPARATIONS 3 s.h.

Preparation of inorganic compounds expressing different techniques of synthesis. Designed for those students who have chosen to do inorganic research but have never had a prep course. Four hours lecture-laboratory.

CH 610 INORGANIC CHEMISTRY (core course) 3 s.h.

Theoretical inorganic chemistry and in particular, structure, periodicity, coordination chemistry, bonding and chemistry of non-aqueous solvents. Lecture — three hours.

CH 611 COORDINATION CHEMISTRY 3 s.h.

Chemistry of transition metals, their compounds and complex ions. Lecture — three hours.

CH 615 CURRENT TOPICS IN INORGANIC CHEMISTRY 3 s.h.

Representative elements, chemistry of rare earth elements, inorganic spectroscopy, group theory or any other special areas of chemical interest.

Analytical

CH 521 ADVANCED INSTRUMENTAL METHODS OF ANALYSIS 3 s.h.

Modern instrumental analysis including electrical, spectrophotometric, x-ray, gas chromatography, and other methods. (Open to MS and MA candidates by permission only.) Four hours of lecture-laboratory

CH 620 ANALYTICAL CHEMISTRY (core course) 3 s.h.

Theoretical principles of analytical chemistry. Lecture — three hours.

CH 621 ELECTROANALYTICAL CHEMISTRY 3 s.h.

Theoretical and practical considerations of polarography, potentiometric, amperometric, coulometric, and conductometric methods of chemical analysis. Lecture — two hours — four-hour lab.

CH 622 SPECTROCHEMICAL METHODS OF ANALYSIS 3 s.h.

Study of instrumentation and analytical applications of ultraviolet and visible absorption, atomic spectrometry, fluorescence, x-spectrometry, and nuclear magnetic resonance. Lecture — two hours — four-hour lab.

CH 623 PHYSICAL AND CHEMICAL METHODS OF SEPARATION 3 s.h.

Application of chromatographic methods to the quantitative separation and analysis of chemical systems. Topics will include gas, column, paper and ion exchange chromatographic methods and other methods of separation as time permits. Lecture — two hours — four-hour lab.

Organic

CH 531 ORGANIC QUALITATIVE ANALYSIS

3 s.h.

Gives student experience in systematic identification of various classes of organic compounds by both chemical and physical methods. Four hours lecture-laboratory.

CH 535 CURRENT TOPICS IN ORGANIC CHEMISTRY

3 s.h.

With selections to meet the needs and interests of the students, possible topics may include: reaction mechanisms, molecular spectroscopy, stereochemistry, natural products, heterocyclics, polymer chemistry, and organic synthesis.

CH 630 ORGANIC CHEMISTRY (core course)

3 s.h.

Principles of physical chemistry will be applied to the study of organic reaction mechanisms. Lecture — three hours.

Physical Chemistry

CH 540 PHYSICAL CHEMISTRY (core course)

3 s.h.

An introduction to chemical bonding and molecular structure. Lecture — three hours.

CH 641 STATISTICAL THERMODYNAMICS

3 s.h.

The application of statistical mechanics to chemical systems. Lecture — three hours.

CH 642 CHEMICAL KINETICS

3 s.h.

An introduction to empirical and theoretical chemical kinetics. Lecture — three hours.

CH 643 QUANTUM CHEMISTRY

3 s.h.

An introduction to quantum theory and its application to atomic and molecular structure and spectroscopy. Lecture — three hours.

CH 645 CURRENT TOPICS IN PHYSICAL CHEMISTRY

3 s.h.

With selection to meet the needs and interests of the student, possible topics may include: quantum mechanics, molecular structure, chemical thermodynamics, statistical mechanics and chemical kinetics.

Biochemistry

CH 646 BIOCHEMISTRY

3 s.h.

Topics covering and emphasizing most recent developments in the areas of biochemistry such as amino acids, carbohydrates, lipids, nucleic acids, proteins, enzymes, metabolism and metabolic control. Lecture — three hours.

CH 651 BIOCHEMISTRY TOPICS

3 s.h.

A discussion of areas such as carbohydrates, lipids, amino acids, proteins, nucleic acids, kinetics, and metabolism. Lecture — three hours.

CH 652 ENZYMES

3 s.h.

A study of enzymes to include isolation, kinetics, classification, specificity, mechanisms, cofactors, structure and formation. Lecture — three hours.

COMMUNICATIONS MEDIA

In the Communications Media Department, the student may choose from the following programs:

- I. Master of Education in Communications Media
- II. Instructional Media Specialist Certificate

Students pursuing careers in medical communications, business or industrial training as well as educational communications have the opportunity to choose a course of study that most effectively prepares them for entry into that profession. To this end, the department's modern facilities and professional staff will provide students the opportunity to do intensive work in photography, cinematography, graphic production, radio, television, instructional design and development, media management or such combinations of these areas as students may desire to accomplish their goals. In many of these courses, students gain actual work experience in the design, production and evaluation of training, promotional and educational materials for local business, industrial, educational and medical communities. Culmination of the academic experience is an internship experience in which students have the opportunity to apply theory to practice.

All departmental offerings are distributed within the following course concentration blocks. These blocks are to serve as guides only for choosing those courses that are consistent with the student's goals. Students may elect courses from all three blocks or may choose to concentrate on only one.

Students are encouraged to consult their adviser and course instructors at frequent intervals, especially during the schedule planning stage prior to pre-registration. For current curriculum information, students should contact the department chairperson.

Block A. Media Management: CM 630, CM 660, CM 669, EL 656, AD 642

Block B. Media Production: CM 504, CM 505, CM 509, CM 540, CM 543, CM 544, CM 545, CM 547, CM 548, CM 550, CM 551, CM 552, CM 571, CM 572, CM 573

Block C. Instructional Development: CM 503, CM 600, CM 601, CM 602, CM 615, CM 561, FE 515, ED 607, EL 631, EL 655.

MASTER OF EDUCATION IN COMMUNICATIONS MEDIA

In addition to being admitted to The Graduate School, the student must have taken the GRE (aptitude test only). Students wishing to transfer from another graduate program at IUP to this program must have at least a B average in graduate courses taken here. The applicant may then be asked to come for an interview with the departmental Graduate Committee and if accepted, a tentative program will be planned. While some basic media com-

petencies as might be obtained in an audiovisual course are preferred of all applicants, such experience is not a requirement for acceptance into the program. Where lacking, these competencies will be built into the student's program of study.

I. Master of Education in Media Program

A. Professional Development Area (nine s.h.)

1. Humanistic Studies (three s.h.) one of FE 611, 612, 613, 514
2. Behavioral Studies (three s.h.) one of EP 604, 573, 576, 578, 580, or CE 629, CE 639, EX 631, or PC 636
3. Research (three s.h.) GR 615

B. Specialization Core (six s.h.) CM 503 and 615

C. Subject Area

1. CM 669 Internship (two s.h. minimum) required of all media majors.
2. Student elected concentrations from Blocks A, B or C. Dependent upon terminal option (see below) selected, student will take 12-18 s.h. media courses specializing in one block or taking a variety of courses from Media Management, Media Production or Media and Instructional Development Blocks.
3. Options
 - a. Thesis — 30 s.h. including all of A, B, and C-1 above, plus thesis.
 - b. Course work — 36 s.h. including all of A, B, and C-1 above, plus electives to total 36 hours.

For description of FE courses, see section on FOUNDATIONS OF EDUCATION; for EP courses, EDUCATIONAL PSYCHOLOGY; for CE courses, COUNSELOR EDUCATION; for EX course, SPECIAL EDUCATION; for PC course, PSYCHOLOGY.

For description of GR courses, see entry under "GENERAL SERVICE COURSES, page 41.

II. Certification as an Instructional Media Specialist

The specialist certificate in Instructional Media may be awarded to students who hold at least a Pennsylvania Level I or equivalent certificate valid for elementary or secondary education and who complete 24 semester hours of graduate work in the curriculum of Communications Media and related subjects. With the approval of an adviser, each student will select a balance of courses from each of the two course concentration blocks described earlier; however, CM 503, 615, 630, 660, and 669 must be included in the courses selected. Application for the Certificate is made through the Communications Media Department to the Pennsylvania Department of Public Instruction.

By careful structuring of their program it is possible for students to obtain both the MEd degree and the Instructional Media Specialist Certification concurrently. Usually this will require slightly more than the 30 semester hours of minimum credits required for the MEd but students often find it to their advantage to fulfill the requirements for both programs.

Graduate school admission does not automatically ensure acceptance into the certificate program. Successful applicants will present evidence of (1) the intellectual ability to do acceptable graduate work, (2) satisfactory

scores on the GRE, and (3) the requisite personal qualifications of character, health, and professional background. The departmental graduate faculty will make the necessary determinations.

COURSE DESCRIPTIONS

**CM 503 DESIGN AND WRITING FOR
MEDIA PRODUCTIONS**

3 s.h.

Provides an introduction to script writing for films and filmstrips. Various styles and techniques of writing will be analyzed and each student will be expected to experiment with the techniques presented. Emphasis on writing and criticism, in class, of student script.

CM 504 FOUNDATIONS OF BROADCASTING

3 s.h.

An examination of the historical, legal, and economical aspects of modern broadcasting. Extensive readings in fundamental theory and a study of current station and network practices, educational as well as commercial.

CM 505 INTRODUCTION TO RADIO BROADCASTING

3 s.h.

Examination of historical, legal and economic aspects of modern broadcasting. Extensive readings in fundamental theory and study of current station and network practices, educational as well as commercial.

CM 509 PROGRAMMING MULTI-IMAGE MATERIALS

3 s.h.

Introduction to scripting, storyboarding and production of multi-image presentations. Major emphasis on students producing their own three-screen, six projector program through the use of computer programming equipment. Prerequisite: CM 571, CM 503.

CM 540 COMMUNICATIONS GRAPHICS

3 s.h.

Provides basic experiences in planning and producing commonly used television studio, industrial display and classroom graphics which are applicable in educational, industrial and medical training programs. Experiences include layout and lettering; color, mounting and laminating techniques; copying techniques such as Thermofax, photography and Xerography; photo silk screening and photo sketching.

CM 543 SLIDE AND FILMSTRIP PRODUCTION

3 s.h.

Emphasizes techniques of color and b/w slide preparation, duplication, titling and binding; techniques necessary to produce color filmstrips on a commercial basis, and students will participate in making of a filmstrip through all stages, from script to screen. Techniques for making home-made filmstrips will also be explored. Each student must furnish own 35 mm camera, and an acceptable exposure meter. Prerequisite: CM 571 Photographic Fundamentals.

CM 544 BEGINNING MOTION PICTURE PRODUCTION

3 s.h.

Emphasis on effective use of motion picture camera and editing tools to make useful, locally produced teaching films. No previous experience is necessary, but student should own or have access to an 8mm or 16mm camera, and an acceptable exposure meter.

CM 545 ADVANCED MOTION PICTURE PRODUCTION

3 s.h.

Production planning for motion pictures, directing, advanced picture and sound editing techniques, and use of sound recording and lab facilities. In addition to live action cinematography, titling, animation, and special effects photography will be investigated. Prerequisite: CM 544.

CM 547 ANIMATION	3 s.h.
Introduces a variety of motion picture animation techniques and offers practical experience in planning and carrying out production of animated sequences. Experimentation with filmograph, cut-out, puppet, and full cel animation. Practice in designing, drawing, tracing, inking, and painting cells; preparation of blackboards, use of cel boards; animation camera, and stand; preparation of story boards and cue sheets; integration of visual and sound. Prerequisite: CM 544.	
CM 548 WRITING FOR RADIO AND TELEVISION	3 s.h.
For teachers, school administrators, and non-school persons interested in public service, non-professional, or educational broadcasting. Presents theory and practice in planning, writing, and producing various kinds of programs for listeners in and out of schools. Educational and/or radio experience is desirable but not required.	
CM 550 ADVANCED AUDIO RECORDING TECHNIQUES	3 s.h.
Theory and practice of recording sound for motion pictures, video tapes, audio tapes, sound filmstrips, etc. Will use sound on sound and other special recording techniques.	
CM 551 TELEVISION PRODUCTION AND DIRECTION	3 s.h.
Intensive lab course using closed circuit facilities designed to develop skills in program production and direction. Theory and practice of production is examined with each student expected to produce a television program during the course.	
CM 552 ADVANCED TELEVISION PRODUCTION	3 s.h.
For advanced graduate student with prior training and experience in television. Advanced television production techniques, set design, lighting, remote video taping, special effects, and production of a professional quality documentary. Prerequisite: CM 551.	
CM 561 LEARNING SYSTEMS DESIGN	3 s.h.
Introduction to elements of systems approach to learning system design. For people involved in any level of instruction such as teachers, industrial, government and social trainers. Participants will have opportunity to study and carefully plan a learning system according to accepted phases of analysis, design and evaluation.	
CM 571 PHOTOGRAPHIC FUNDAMENTALS	3 s.h.
Emphasis on use still picture camera and the darkroom for instructional purposes, the making of b/w negatives, 35mm slides, copywork, developing b/w and color film, and b/w contact printing and enlarging. Each student must furnish own 35mm camera and an acceptable exposure meter. Camera must have manual focusing and manual exposure setting capability. No previous photographic experience is necessary.	
CM 572 PHOTOGRAPHY II: THE PRINT	3 s.h.
Students in Photography II: The Print will be expected to develop their camera and print-making skills to the degree that they can produce solon-quality photographic prints. Students will understand the photographic processes utilized in producing a high quality negative and print to the extent that they can manipulate those processes to communicate on intended message with their photographs. Emphasis will be placed on camera and print control as well as composition and negative and print manipulation. Prerequisites: CM 571 and permission of the instructor.	
CM 573 CREATIVE DARKROOM TECHNIQUES	3 s.h.
Student will pursue on an individual basis those photographic skills which he/she wants to develop to a high proficiency. Topics to be covered in lecture include high-contrast photography, silk screen photography, tone line, bas relief, posterization, etch bleach, photo sketching, print screening, color print and slide making, lighting techniques and flash photography as well as other topics that might be pertinent to meeting a student's objectives. Prerequisites: CM 571 and permission of the instructor.	

CM 600	SEMINAR IN LEARNING RESOURCES	3 s.h.
Major emphasis on differences in learning materials, learning and teaching methods. The student will do literary research for a better understanding of how learning resources are related to learning process in our society.		
CM 601	THE CLASSROOM USE OF MOTION PICTURES	3 s.h.
Develops a basis for critical evaluation of films for various educational purposes. Emphasis on an understanding of production techniques, stereotypes, prejudices, and misconceptions which influence the quality of educational films.		
CM 602	PROGRAMMING SYSTEMATIC INSTRUCTION	3 s.h.
Will cover historical development theory and philosophy, audio instructional equipment, programmed texts, theories of programming, types of programs available, analysis and evaluation of research.		
CM 615	ROLE OF LEARNING RESOURCES	3 s.h.
Examines role of perception as it pertains to sensory experiences and inner cognitive processes in relationship to maturation, goals and drives, and environment. Seeks to relate psychological processes to learning resources, with emphasis on newer media.		
CM 630	CLASSIFICATION AND CATALOGING OF LEARNING RESOURCES	3 s.h.
Principles of classifying and cataloging learning resources such as motion pictures, video tapes, filmstrips, slides, transparencies, disk and tape recordings, microfilm, microcard and microfiche, flat pictures, etc. For learning resources administrators and librarians.		
CM 660	MANAGEMENT OF LEARNING RESOURCES PROGRAMS	3 s.h.
Considers the problems in setting up and managing an integrated program, including production, selection, utilization, and management of Learning Resources Centers; and problems of finance and organization of the different services; relationships among school systems, colleges, and community and adult groups; and evaluation standards for various services.		
CM 669	INTERNSHIP PROGRAM OF LEARNING RESOURCES SPECIALISTS	2-6 s.h.
A candidate would work in a carefully planned variety of roles in a comprehensive regional learning resources center or similar situation, television broadcasting or closed-circuit facility, motion picture production agency, programmed learning development organization learning resources workshop program, little theater group, major museum or approved equivalent, under competent university and agency supervision, and would be rated by both the cooperating agency and the University.		
CM 699	GRADUATE INDEPENDENT STUDY	1-3 s.h.
The student may elect, with approval of adviser, to do several different independent study projects University facilities and equipment are provided but student must apply materials and pay for processing and production costs. Prerequisite: Successful completion of the basic courses in the medium selected, the professor's approval.		

COMPUTER SCIENCE

The Computer Science Department does not currently offer a program leading to a master's or doctoral degree. Graduate courses are offered as dual level with undergraduate courses.

COURSE DESCRIPTIONS

CE 502 COMPUTERS IN EDUCATION

3 s.h.

Introduction to computers and computer programming in the language BASIC, with emphasis on applications in education; general models for computer usage in education, and educational institutions, case studies of specific projects in terms of approach, effectiveness, and implications for the future. No computer prerequisites.

CO 510 PROCESSOR ARCHITECTURE AND MICROPROGRAMMING

3 s.h.

The logical description of computer processor structure (architecture), with emphasis on the microprogramming approach. Project assignments using the Microdata 1600 minicomputer at microl level. Prerequisite: Permission of the instructor.

CO 520 MODERN COMPUTER LANGUAGES

3 s.h.

Comparative study of the properties and applications of a range of modern higher level programming languages, including APL, SNOBOL, PL/I, ALGOL 60, PASCAL, LISP, and TRAC. Comparison with older languages such as BASIC, FORTRAN, COBOL, and RPG. Prerequisite: Permission of the instructor.

CO 530 INTRODUCTION TO SYSTEMS PROGRAMMING

3 s.h.

Concepts and techniques of systems programming with an emphasis on assembly and compilation of user programs. Representation of source language so as to facilitate the needed translation process. Exercises using the University computer and the departmental minicomputer and microcomputer. Prerequisites: Permission of the instructor.

CO 540 LARGE FILE ORGANIZATION AND ACCESS

3 s.h.

The organization of large computer files for business systems, information systems, and other applications. Use of COBOL and Assembler for efficient file access. Evaluation of file access. Prerequisite: Permission of the instructor.

CO 541 DATA BASE MANAGEMENT

3 s.h.

Review of data base concepts. Detailed study of data base management approaches. Comparative presentation of commercially available data base management systems. Prerequisites: Permission of the instructor.

CO 550 APPLIED NUMERICAL METHODS

3 s.h.

Polynomial approximations using finite differences; applications in numerical integration and differentiation. Numerical solution of initial value ordinary differential equations; boundary value problems; difference methods for partial differential equations. The APL language will be introduced and used, along with FORTRAN, in programming selected algorithms. Prerequisites: Computer Programming, Linear Algebra, and Ordinary Differential Equations.

CO 551 NUMERICAL ANALYSIS

3 s.h.

Theory of polynomial approximation; applications to quadrature formulae. Numerical solution of linear systems and computation of eigenvalues and eigenvectors using matrix transformation methods. Selected topics from differential equations, linear programming, rational approximations, and Monte Carlo techniques. Prerequisite: CO 550.

CO 560 THEORY OF COMPUTATION 3 s.h.

Formal methods for describing and analyzing programming languages and algorithms; Backus-Naur forms; productions; regular expressions; introduction to automata theory; Turing machines; recent concepts in algorithm theory. Prerequisite: Permission of the instructor.

CO 581 SPECIAL TOPICS IN COMPUTER SCIENCE 3 s.h.

Seminar in advanced topics from Computer Science; content will vary depending on the interests of the instructor and students (consult department for currently planned topics). May be repeated for additional credit. Prerequisite: Permission of the instructor.

CO 601 FUNDAMENTALS OF COMPUTER PROGRAMMING 3 s.h.

Introduction to digital computer programming. Development of problem solving skills using flowcharting and a problem oriented language, such as FORTRAN. Four to five programs required. Description of a large problem from students field of interest for possible computer solution.

CONSUMER SERVICES

Graduate courses in Consumer Services are primarily designed to provide in-depth study in particular areas of home economics. A graduate degree in Consumer Services is pending. Credits in these courses may be used towards a degree in Home Economics Education.

COURSE DESCRIPTIONS

CS 533 CONSUMER SERVICES STUDY TOUR 1-6 s.h.

Offered to broaden the scope of experience and understanding of fashion in clothing, textiles, and interior design. Historic costumes, textiles, and decorative arts are viewed. Fashion houses, designer salons, cottage industry centers, retail stores and museums are visited.

CS 534 QUALITY CONTROL IN TEXTILES 3 s.h.

Physical properties explored through microscopic examination and use of textile testing equipment for fabric analysis. Prerequisite: CS 314 Textiles or equivalent. Two lecture hours, two laboratory hours.

CS 553 FLAT PATTERN DESIGN 3 s.h.

Garment design achieved by use of flat pattern techniques. An understanding is developed for the interrelationships of garment design, fabric, fit, and construction processes. Two major projects required. One hour lecture, three hours laboratory.

CS 554 TAILORING 3 s.h.

Various tailoring methods are studied and applied in the selection, fitting, and construction of a tailored garment. Consumer problems in the selection of ready-to-wear apparel are investigated. A research study or special project is required. One hour lecture, three hour laboratory.

CS 555 DRAPING

3 s.h.

In-depth study of the principles involved in fashion design, draping principles, and the manipulation of fabric to conform to the human figure. Students will pad a form to individual measurements and design garments that are both individual and original. Two major projects required. One hour lecture, three hours laboratory.

CS 556 HISTORIC COSTUME

3 s.h.

Chronological study of historic costume from ancient times to the present day, emphasizing style details as well as social, economic, political, religious, and aesthetic influences on design of clothing. Three lecture hours.

CS 561 MICROWAVE COOKING TECHNOLOGY

3 s.h.

Study of the electronic technology, selection, care and use of the microwave oven. Basic physical and chemical concepts related to microwave cooking will be included. Individual investigative research problems will be required. Two lecture hours plus two lab hours per week.

CS 562 HISTORIC INTERIORS

3 s.h.

Chronological study from ancient times to the mid-19th Century of the dominant influences and characteristics of historical interiors, furniture and ornamental design. Emphasis placed upon style detail and its relationship to social, economic, political, religious and aesthetic influence, and to the contemporary scene. Paper required. Three lecture hours.

CS 563 MODERN INTERIORS

3 s.h.

Chronological study from mid-19th Century to the present of the dominant influences and characteristics of 20th Century interiors, furniture and ornamental design. Emphasis placed upon style detail and its relationship to social, economic, political, religious and aesthetic influence, and to the contemporary scene. Paper required. Three lecture hours.

CS 564 INTERIOR PLANNING AND DRAWING

3 s.h.

Lifespace analysis and design as related to residential applications. Presentation, appropriate media, equipment and techniques will be stressed. Freehand and mechanical methods employed to depict floor plans, elevations and construction details. A research project related to professional interests is required. One hour lecture, three hours lab per week.

CS 630 CLOTHING AND HUMAN BEHAVIOR

3 s.h.

Understanding factors affecting clothing decisions of differing individuals and families. Cultural, social, psychological and economic influences are considered. Concepts from anthropology, sociology, psychology and economics are explored in studying the relation of clothing to human behavior.

CS 631 CREATIVE CLOTHING

3 s.h.

Factors that influence clothing design and sources of design inspiration are investigated. Lines, shapes, colors, and textures are studied in the creation of clothing to fit the human body. Effects of fabric finishes, drapability, and dimensional stability on design are explored. Two major projects required.

CS 632 RECENT DEVELOPMENTS IN TEXTILES

3 s.h.

Designed to acquaint the student with the new developments in textiles as they affect the consumer. Emphasis on understanding factors involved in selection, use and care of new fibers, fabrics and finishes.

CS 650 HUMAN RESOURCE MANAGEMENT

3 s.h.

Principles of management are studied in-depth as they encompass conditions of the household or family. A systems approach is used to analyze the components and functions of home management. Management of resources is emphasized to improve day-to-day living of families and individuals with different life-styles. Individual research on pertinent topics is required.

CS 655	CONSUMER ECONMICS	3 s.h.
Problems in consumer expenditures with emphasis given to effects of current economic and social forces. Individual investigations are required.		
CS 656	PROBLEMS IN FAMILY FINANCE	3 s.h.
Advanced problems in personal and family finance. Individual investigations in current situations are required.		
CS 661	CONSUMER ELECTRONICS	3 s.h.
In-depth study of household equipment in relation to energy and its distribution and consumption throughout the network systems of the house. Individual problems required.		
CS 662	PROBLEMS IN HOUSING	3 s.h.
Private and public housing problems posed by an urbanizing society and approaches to their solution are studied. Social, economic, physical and psychological factors are explored. Three hours lecture.		
CS 663	PROBLEMS IN INTERIOR DESIGN	3 s.h.
Advanced work in the design, selection and arrangement of furnishings for residential interiors are studied in relation to the fulfillment of human needs and the application to interior design problems.		
CS 664	LIVING ENVIRONMENTS FOR OLDER ADULTS	3 s.h.
Social, psychological, physical, and economic concerns of the older adult are considered in relation to housing alternatives. Selected legislation and current programs are investigated, evaluated, and compared to proposals for a more livable and satisfying near environment.		

COUNSELOR EDUCATION

Department offerings include Master of Arts, Master of Education and Doctor of Education degree programs. Commonwealth approved programs leading to certification as elementary school counselor, secondary school counselor, and supervisor of guidance services, and supervisor of pupil personnel services are also available.

Degree Programs

The Master of Arts degree programs (Counseling Services: Student Personnel Services in Higher Education), are designed for students seeking preparation leading to counseling and counseling-related employment in non-school settings and student services in higher education. The Master of Education degree program is the appropriate base for students seeking preparation leading to certification as elementary or secondary school counselors. The doctoral program in counselor education focuses upon the role of supervisor of guidance services and student personnel services in basic and higher education and the role of the counselor-supervisor in agencies or institutions.

Certification Programs

Elementary and Secondary School Counselors — To qualify for institutional endorsement and Commonwealth certification the student must complete a 45 credit hour competency-based program to include field experience and all requirements of the Master of Education degree.

While teaching experience is not an absolute requisite for admission, students should have or obtain an understanding of educational philosophy, objectives, and practices. They should also understand the basic principles of psychology, sociology, and related fields, and possess sufficient background in mathematics to comprehend the statistical materials and methods with which the counselor must be familiar. Prospective students should include introductory courses in these areas in their undergraduate preparation.

Supervisor of Guidance Services and Supervisor of Pupil Personnel Services — These two areas of study are six-year, competency-based, management-oriented programs. They are designed for the preparation and certification of guidance services supervisors or pupil personnel services supervisors in grades K-12. Applicants for both certificates must have suitable academic credentials to include the master's degree. The supervisor of guidance services applicant must have at least one year of experience as a school counselor. The supervisor of pupil personnel services applicant must have at least one year of experience as a pupil personnel specialist.

The Doctorate in Counselor Education — This is a program specifically designed to meet the needs of counselors and pupil personnel specialists who desire to become supervisors and for those supervisors who desire to refine and upgrade their competencies. Graduates may choose from doctoral program concentrations that lead to the development of competencies needed to function in one of the following areas: supervisor of guidance services for basic education, supervisor of pupil personnel services for basic education, supervisor of student personnel services for higher education, supervisor of counseling services for public or private agencies, or a teacher in higher education.

A complete description of the Doctor of Education Program in Counselor Education may be obtained from the Counselor Education Department in Stouffer Hall.

A departmental adviser is assigned to each student who assists with the preparation of course schedules and all other program concerns in a manner consistent with Graduate School and department policy. Students should plan their program and course schedules in consultation with their adviser.

CONTENT AREAS

All students enrolled in master's level programs will complete a core supported by suitable electives. The core consists of GR 615, GR 516, CE 850 (Thesis Optional), CE 631 or CE 620, and CE 633 for a total of 12-15 semester hours. GR course descriptions can be found under General Service Courses. See the course descriptions in this section for all CE and ST courses.

Master of Arts in Counseling Services (Community Counseling) program majors will complete the core, plus CE 635, CE 637, CE 639, CE 641, CE 655, and six to nine hours in supporting electives.

Majors in the Master of Arts in Student Personnel Services in Higher Education will complete a modified core to include GR 615, GR 516, CE 633, CE 637, and CE 641. Students in this program also take ST 626, ST 627, ST 628, ST 629, ST 630, and three hours in supporting electives.

Students seeking Commonwealth certification as elementary school counselors will complete the core and CE 625, CE 626, CE 627, CE 629, CE 638, CE 640, and CE 655 plus one course in Foundations of Education and six semester hours of electives.

Students seeking Commonwealth certification as secondary school counselors will complete the core and CE 635, CE 636, CE 637, CE 638, CE 639, CE 641, and CE 655 plus one course in Foundations of Education and six semester hours in supporting electives.

Supervisor of Guidance Services program candidates, with suitable qualifications, complete MG 630, CO 502, FE 515, CE 642, CE 643, CE 644, CE 645, CE 646, CE 650, CE 651, and CE 660. For descriptions of the MG, CO, and FE courses, see the sections on BUSINESS, COMPUTER SCIENCE, and FOUNDATIONS OF EDUCATION.

Supervisor of Pupil Personnel Services program candidates will, with suitable qualifications, complete courses MG 630, CE 630, CE 642, CE 643, CE 644, CE 645, CE 646, CE 647, CE 649, CE 660, CO 502, and FE 515.

Doctoral program majors complete one of the supervisory cores outlined above plus an eighteen-hour research equivalent which includes the dissertation.

Courses outside the student's major may serve as suitable electives, but only with approval of the adviser and the course instructor. For additional information about individual programs contact the Department Chairperson.

COURSE DESCRIPTIONS

CE 625 INDIVIDUAL ANALYSIS (ELEM) 3 s.h.

CE 635 INDIVIDUAL ANALYSIS 3 s.h.

Principles, problems, methods, and content involved in understanding the individual student and his/her developing self-concept. Prerequisites: CE 631, 633.

CE 626 INFORMATION SERVICE (ELEM) 3 s.h.

CE 636 INFORMATION SERVICE 3 s.h.

Designed to present the information service as a distinct and vital part of the guidance services. Emphasis on relationship between information service and other guidance services; theories related to career education, vocational development, and decision making, need for information in the process of vocational, educational, and social development, processing and uses of information. Prerequisite: CE 631.

CE 627 CONSULTATIVE AND COUNSELING THEORY (ELEM) 3 s.h.

CE 637 COUNSELING AND CONSULTATIVE THEORY 3 s.h.

Theories, objectives, principles and practices of counseling and consulting with individuals are covered. Interview techniques are presented for maximum development with subsequent practicum experience. Prerequisite: CE 631.

CE 629	GROUP PROCEDURES (ELEM)	3 s.h.
CE 639	GROUP PROCEDURES	3 s.h.
	Emphasis will be placed upon nature of groups, techniques involved in development of dynamics of group behavior, formation and operation of groups, organization and structure of groups, and influence of group upon the individual as they relate to common problems.	
CE 630	PROFESSIONAL, ETHICAL, AND LEGAL CONSIDERATIONS	3 s.h.
	Emphasis is placed on legal and ethical issues associated with the counseling profession. It analyzes the function of ethics in the profession and studies the legal rights, duties, and liabilities of counselors.	
CE 631	INTRODUCTION TO GUIDANCE SERVICES	3 s.h.
	Overview of genesis and development of guidance in American education, including philosophical concepts, psychological theories, cultural and social influences, and current practices.	
CE 633	EVALUATION TECHNIQUES	3 s.h.
	Basic concepts utilized in testing, emphasizing data concerning purposes and types of tests, test administration, test scoring, test validity, and test selection. Prerequisites: CE 631, GR 516.	
CE 638	MANAGEMENT OF THE GUIDANCE SERVICES	3 s.h.
	Helps school counselor acquire necessary competencies to manage guidance services. Emphasis placed upon planning, organizing, coordinating, directing, and controlling functions of management as applied to guidance services within framework of the school's philosophy and objectives of education. Prerequisites: CE 631, 633, 635, 636, 637, 639 or corresponding elementary school counselor course.	
CE 640	SUPERVISED PRACTICUM (ELEM) Prerequisite: CE 627)	3 s.h.
CE 641	SUPERVISED PRACTICUM (Prerequisite: CE 637)	3 s.h.
	Practicum experience in counseling techniques, including interviews, observations, written reports, and group interaction. Students work with counselees appropriate to their level of preparation and goals. Emphasis is both developmental and problem-centered. Since aspects of all component guidance services are included, this is a terminal course in the core sequence.	
CE 642	SCHOOL SERVICES	3 s.h.
	Designed to analyze critically written statements of educational philosophies and objectives of selected elementary and secondary schools, students will prepare a written statement of educational philosophy and objectives for a school in which he/she is or has been employed as a guide for the critical examination of philosophies and objectives for school services — instructional, administration and supervisory, and pupil personnel.	
CE 643	PLANNING PRINCIPLES	3 s.h.
	Student will develop written statements of philosophy and objectives for pupil personnel services and the service in which certified. Program elements will be established from objectives. Program elements will be critically analyzed to determine the resources, including personnel, facilities, materials, and money required to execute program elements and satisfy objectives. Prerequisites: MG 630, CE 642.	

CE 644 ORGANIZING PRINCIPLES

3 s.h.

Student will identify tasks necessary to execute program elements which will fulfill pupil personnel services objectives. Personnel qualified to perform tasks will be identified. Techniques to relate tasks to personnel will be examined to develop organizational patterns necessary to initiate programs of pupil personnel services in districts of various sizes and compositions. Prerequisites: CE 643.

CE 645 HUMAN RELATIONS AND COMMUNICATIONS

3 s.h.

Students will develop skill in programming various guidance services for the school year throughout the district. Human relations principles and techniques to elicit cooperation from personnel involved and skills in communicating with personnel participating in the program of guidance services and with the public will be developed.

CE 646 ENCOUNTER AND SENSITIVITY

3 s.h.

Participants will explore their own individuality and human potential as they enter into authentic, honest and trusting relationships within the context of a small group experience encouraging recognition and expression of feelings as an effective way of understanding one's self and impact on others.

CE 647 INTRODUCTION TO PUPIL PERSONNEL SERVICES

3 s.h.

Philosophy, objectives and roles of each of the pupil personnel services will be considered. Emphasis on team approach to services. Pupil personnel services will be considered as a facilitating function contributing to the development of individual pupils and to success of total instructional and management processes of the school.

CE 648 ADVANCED RESEARCH IN COUNSELOR EDUCATION

3 s.h.

Research literature in counselor education and research design are covered. The student will develop and present a trial dissertation proposal.

CE 649 PRINCIPLES OF SUPERVISION

3 s.h.

Designed to permit student to study theory, research and evolving concepts of supervision.

CE 650 SUPERVISION OF COUNSELORS

3 s.h.

A practicum designed to provide allied experience in supervision of school counselors, elementary and secondary, in preparation of supervisors of guidance services. Primary focus is on supervision of counseling service content and process, but components of all guidance services are included.

CE 651 EVALUATION OF PUPIL PERSONNEL SERVICES

3 s.h.

Student will evaluate programs of services as related to the educational objectives and pupil personnel services objectives of the school including initiation of appropriate research and preparation and reporting of recommendations based upon findings. Prerequisite: CE 644.

CE 652 THE SKILLS APPROACH TO DECISION MAKING

3 s.h.

Decision-making is viewed as a multi-dimensional life process which integrates all facets of self in life planning and goal setting. Games, role playing, group work, and related experiences are utilized in providing experiential exposure to a diversity of decision-making models which can be applied to a variety of work settings.

CE 655 FIELD EXPERIENCE

3 s.h.

This course provides a supervised field experience for students in the counselor education programs. The plan and scope of the field experience will be determined by the student and faculty on an individual basis.

CE 656 INDEPENDENT STUDY 1-3 s.h.

Topic pertinent to the individual's program of study. By permission of department chairperson and adviser only.

CE 660 INTERNSHIP IN COUNSELOR EDUCATION 12 s.h.

The internship provides an opportunity to apply didactic experiences in the work setting of the supervisor of guidance services under carefully supervised conditions.

ST 626 HISTORY OF HIGHER EDUCATION IN THE UNITED STATES 3 s.h.

Growth and trends of higher education in the United States with emphasis on twentieth century.

ST 627 STUDENT PERSONNEL SERVICES IN HIGHER EDUCATION 3 s.h.

Overview of student personnel work in higher education, highlighting its history, purposes, organization, philosophy, ethical values, current and past social and legal issues, including various student services such as admission and registration, data processing and scheduling, housing and food services, career counseling and placement, college unions and student activities, sources of financial aid, fraternities and sororities, intramural athletics and other programs.

ST 628 INTERNSHIP IN STUDENT PERSONNEL SERVICES 3 s.h.

Affords the student an opportunity to gain practical experience in dealing with theories of his/her specialties. Includes one or two semesters in one of the student personnel offices at IUP under leadership and instruction of departmental director or coordinator. Limited number of off-campus internships with affiliate institutions can be arranged.

ST 629 STUDENT DEVELOPMENT IN HIGHER EDUCATION

Provides an overview of student development theories and the student development model. Includes the application of assessment, goal setting, intervention strategies, environmental management, and evaluation in higher education settings.

ST 630 MANAGEMENT OF THE STUDENT PERSONNEL SERVICES

Designed to teach managerial concepts and skills for managing the Student Personnel Services. Concepts covered include planning, leadership, management, supervision, organizational development, goal setting, collective bargaining, legal issues, and team building.

CRIMINOLOGY

The Department of Criminology offers a program of studies leading to a Master of Arts Degree in Criminology. Students may choose from a wide variety of course offerings or select specialized areas of concentration. In addition, students may complete elective courses in fields directly related to criminology. The program is designed for individuals who are currently employed within the criminal justice system and students who are interested in pursuing careers in criminology and related disciplines. The department also offers courses open to students following other degree programs in the Graduate School.

Department Admission Requirements

In addition to meeting the requirements for admission to the Graduate School, a student intending to work toward a Master of Arts in Criminology will be required to have the following prerequisite professional preparation:

- A. Students should demonstrate a sound understanding of the criminal justice system; or
- B. Students should have practical experience within the system of justice or have pursued an undergraduate degree in criminology, or completed graduate or undergraduate studies in a related field.*

*Where the Department determines that a deficiency in background experiences or educational requirements exists, a student may be permitted (with permission of the Director of Graduate Studies) to complete additional studies to eliminate the deficiency.

MASTER OF ARTS IN CRIMINOLOGY

Students may choose between a thesis or a non-thesis curriculum:

Thesis Degree Requirements — A total of 30 semester hours is required, including CR 601, CR 698, CR 850, and a competence in statistics. A minimum of nine semester hours in other criminology graduate courses must be completed as well as six to nine hours of departmentally-approved graduate courses from other disciplines. Option requirements may apply to course selection.

Non-Thesis Degree Requirements — A total of 36 semester hours is required including CR 601 and CR 698 and a competence in statistics. A minimum of 15 semester hours in other criminology graduate courses must be completed as well as 12-15 semester hours of departmentally-approved graduate courses from other disciplines. Option requirements must apply to course selection.

COURSE DESCRIPTIONS

CR 601 CRIMINOLOGICAL THEORY

3 s.h.

An intensive review of selected criminological theories; with emphasis on in-depth understanding of relevant theoretical approaches to crime and criminally deviant behavior.

CR 602 INTRODUCTION TO CRIMINOLOGICAL RESEARCH

3 s.h.

Analysis of research methodology apropos to study of crime and deviant behavior. Course structure will emphasize research design and development, methods of scientific field inquiry, objective evidence, utilization of library resource materials, and techniques of research presentation.

CR 603 SEMINAR ON POLICE ADMINISTRATION

3 s.h.

Innovative techniques of police organization and personnel management discussed. Review of practical difficulties involved in adapting cybernation, scientific technology, and advanced personnel administration to existing police establishment.

CR 604	PERSONNEL RECRUITMENT AND SELECTION IN LAW ENFORCEMENT	3 s.h.
	Techniques of man-power recruitment and personnel selection coupled with in-depth review of police applicant testing procedures.	
CR 607	SEMINAR IN COMMUNITY COLLEGE TEACHING	3 s.h.
	Designed to prepare community college instructors through an emphasis on the objectives, materials, techniques, and evaluation of general education programs in criminology. Prerequisites: Criminology major or minor.	
CR 611	PREDICTIVE METHODS OF PROBATION AND PAROLE	3 s.h.
	Gives students actual practice in using behavioral prediction devices. Each student will have opportunity to develop experimental models and research the results.	
CR 612	LABORATORY IN BACKGROUND ANALYSIS AND PRE-SENTENCE REPORT WRITING	3 s.h.
	Will provide background information concerning structure, function, and use of pre-sentence investigation. Gives practical training in compilation and analysis of social case histories. Each student, under direct supervision, will develop, organize and write several pre-sentence investigations.	
CR 613	SEMINAR ON CRIME AND DELINQUENCY PREVENTION	3 s.h.
	Exploration of most effective ways of preventing crime and delinquency. Will stress remedial social action, law enforcement and correctional procedures and techniques of community arousal and involvement.	
CR 614	DEVELOPMENT OF INSTITUTIONAL TREATMENT SERVICES	3 s.h.
	In-depth study of institutional treatment methods; including a review of the most successful approaches to curbing recidivism problem. Will investigate therapeutic community and milieu management concepts as well as individual treatment procedures.	
CR 616	ADVANCED SEMINAR ON PROBATION AND PAROLE	3 s.h.
	Provides a thought provoking review of functional relationships between various branches of government and the correctional process, and a thorough analysis of probation and parole processes and their ancillary components. Stresses practical problems of client supervision, resource referral, and termination of supervision services.	
CR 630	INTERNSHIP IN CRIMINAL JUSTICE	3-12 s.h.
	Each student placed with a selected criminal justice agency to participate actively in activities of the unit. Student may earn up to 12 semester hours credit. Students required to submit an acceptable paper explaining experiences in the internship program. By appointment only.	
CR 681	SPECIAL TOPICS	3 s.h.
	Special topics courses are offered at the discretion of the department in a wide area of subjects directly related to law enforcement, courts, corrections or security.	
CR 698	GRADUATE READINGS IN CRIMINOLOGY	3 s.h.
	With faculty supervision, students will read at least six major criminological texts and participate in a seminar situation for the purpose of discussing the reading materials, CR 501.	
CR 699	INDEPENDENT STUDY IN CRIMINOLOGY	1-3 s.h.
	The student, with advice and approval of instructor, reaches a significant problem in Criminology. By appointment. Criminology major or minor.	
CR 850	THESIS	3-6 s.h.

ECONOMICS

The Economics Department does not currently offer a graduate degree. The graduate courses offered by the department are a component of master's degree programs offered by other departments and Schools.

COURSE DESCRIPTIONS

EC 501 FOUNDATIONS OF MODERN ECONOMICS 3 s.h.

Not open to students who have credits of C or better in undergraduate EC 121-122 sequence. Survey of micro and macroeconomics designed for students who is not already well-grounded in the field

EC 520 HISTORY OF ECONOMIC THOUGHT 3 s.h.

Examination of social, political, intellectual, and economic origins of work of prominent past economists, and of the content and impact of their work. Prerequisite: EC 501 or credits of C or better in six s.h. of Principles of Economics or permission of the instructor

EC 521 MACROECONOMIC ANALYSIS 3 s.h.

Covers national income theory with emphasis on the causes and cures of inflation and unemployment. Includes study of consumption and investment theories, fiscal and monetary policy, national income accounts, and growth analysis. Prerequisite: EC 501 or credits of C or better in six s.h. of Principles of Economics or permission of the instructor.

EC 522 MICROECONOMIC ANALYSIS 3 s.h.

Analysis of the theories of consumer demand, the firm, exchange, market structures, distribution, and welfare economics. Prerequisite: EC 501 or credits of C or better in EC 122 Principles of Economics II or permission of the instructor.

EC 525 MONETARY ECONOMICS 3 s.h.

Structure and function of monetary institutions including the Federal Reserve System, commercial banks, and financial intermediaries, theory of monetary economy, and monetary policy. Prerequisite: EC 501, or credits of C or better in six s.h. of Principles of Economics or permission of the instructor.

EC 530 LABOR ECONOMICS 3 s.h.

History, structure and operations of trade unions and employer organizations; major Federal labor legislation; collective bargaining theory; wage determination; current labor problems. Prerequisite: EC 501 or credits of C or better in six s.h. of Principles of Economics or permission of the instructor.

EC 534 ECONOMICS OF CORPORATE DECISIONS 3 s.h.

Applies economic theory to corporate decision-making. Covers mathematical solutions to various profit-maximization and cost minimization problems and examines statistical estimation of demand and cost functions. Prerequisite: EC 501 or credits of C or better in six s.h. of Principles of Economics or permission of the instructor.

EC 536 STATE AND LOCAL FINANCE 3 s.h.

Analysis of the character and consequences of state and local government revenue procurement, expenditures, and fiscal systems. Prerequisite: EC 501 or credits of C or better in six s.h. of Principles of Economics or permission of the instructor.

EC 541 CONTEMPORARY ECONOMIC ISSUES	3 s.h.
Problem areas of domestic economy. Primary focus in each semester is determined by student-instructor interest. Prerequisite: EC 501 or credits of C or better in six s.h. of Principles of Economics or permission of the instructor	
EC 545 INTERNATIONAL ECONOMICS	3 s.h.
Nature of world economy, international trade, international investment, current international institutions, and foreign economic policy of the United States. Prerequisite: EC 501 or credits of C or better in six s.h. of Principles of Economics or permission of the instructor.	
EC 550 COMPARATIVE ECONOMIC SYSTEMS	3 s.h.
Basic economic issues in capitalism, socialism, communism, and fascism, and their relationships to political and social problems. Prerequisite: EC 501 or credits of C or better in six s.h. of Principles of Economics or permission of the instructor.	
EC 560 ECONOMICS OF HEALTH SERVICES	3 s.h.
Analysis of the allocation of resources in the health sector using demand and supply techniques. Pricing and output by physicians, hospitals, and other health agencies are considered, along with National health insurance and current policy issues. Prerequisite: EC 501 or credits of C or better in six s.h. of Principles of Economics or permission of the instructor.	
EC 571 ECONOMICS OF LABOR LEGISLATION	3 s.h.
Economic background and effects of governmental regulation of labor relations, with emphasis on a detailed examination of the National Labor Relations Act as amended. Prerequisite: EC 530 or permission of the instructor.	
EC 572 ECONOMICS OF WAGES AND EMPLOYMENT	3 s.h.
Analysis of wages and employment under various market structures. Also, an analysis of the impact of labor market forces on wages, prices, and distributive shares. Prerequisite: EC 530 or permission of the instructor.	
EC 573 ECONOMICS OF HUMAN RESOURCES	3 s.h.
Analysis of the development and utilization of human resources with an emphasis on the income and employment situation of minorities. Manpower policy options designed to increase the value and use of human resources are also explored. Prerequisite: EC 530 or permission of the instructor.	
EC 574 ECONOMICS OF EDUCATION	3 s.h.
Analysis of the costs and benefits of education, the impact of education on economic growth, the private and public process of determining investment in education, and planning at the institutional level. Prerequisite: EC 501 or credits of C or better in six s.h. of Principles of Economics or permission of the instructor.	
EC 580 SEMINAR	3 s.h.
Seminar in selected economic issues or problems. Prerequisite: EC 501 or credits of C or better in six s.h. of Principles of Economics or permission of the instructor.	
EC 582 URBAN ECONOMICS	3 s.h.
Analysis of the structure of urban economy; goals, processes, problems and policy in urban economic development. Prerequisite: EC 501 or grade of C or better in six semester hours of Principles of Economics or permission of the instructor.	
EC 583 REGIONAL ECONOMICS	3 s.h.
Process of regional economic growth, location theory, basic techniques of regional analysis, public and private area development programs. Prerequisite: EC 501 or grade of C or better in six semester hours of Principles of Economics or permission of the instructor.	

EC 634 ECONOMICS OF CORPORATE DECISIONS 3 s.h.

Applies economic theory to corporate decision making. Covers mathematical solutions to various profit-maximization and cost minimization problems and examines statistical estimation of demand and cost functions. Prerequisite: EC 501 or credits of C or better in six s.h. of Principles of Economics or permission of the instructor.

EC 699 INDEPENDENT STUDY 1-6 s.h.

Directed readings, written assignments, and research on a specific topic determined by the student and the instructor. Prerequisite: EC 501 or credits of C or better in six s.h. of Principles of Economics or permission of the instructor.

EDUCATIONAL PSYCHOLOGY

After admission to The Graduate School, the candidate must secure the Departmental Application Packet, which includes further information from the Educational Psychology Department. Potential candidates will be interviewed by the Program Admissions Committee after the departmental application, copies of transcripts from The Graduate School, and official Graduate Record Examination scores, including Education are received. An adviser will be assigned to approved candidates and no course work may be scheduled without the adviser's approval. The adviser may approve alternate courses to meet required competencies.

Admission to the programs will be based on evidence of previous scholarship and/or potential for academic success, personal and professional qualities deemed necessary for adequate functioning as a specialist in education and motivation for professional excellence. Continued enrollment once begun, is expected. Exceptions to this policy must be filed in writing and approved by the student's program committee.

Candidates for admission to master's degree programs must have a bachelor's degree from an accredited institution. Candidates for admission to the post-master's certification program must have a master's degree and an instructional or specialist certification from an accredited institution or have approved educational experiences.

MASTER OF EDUCATION IN EDUCATIONAL PSYCHOLOGY

The Master of Education degree in Educational Psychology program (33-36 s.h., depending upon choice of thesis or non-thesis option) has been designed to give the interested student a broad theoretical and practical background in the areas of education and psychology. There are three majors in this degree.

General requirements are: All students will take the Professional Development Area (total of nine s.h.), Humanistic Studies (three s.h.), select one FE 611, 612, 613, 514, Behavioral Studies (three s.h.), select one EP 604 or 578, 573, 576, CE 629 or 639, EX 631; Research (three s.h.), GR 615 (Ed. Psych section).

Requirements for the three major areas are as follows:

Pre-school Psychology — (23-27 s.h.) is designed to prepare the interested student for entrance into the post-master's certification program. Professional Specialization courses (six s.h.) EP 618, 662. Subject Area and/or Elective (17-21 s.h.) EP 604, 578, 576, 572, 573, 650, 581, ED 601, PC 640, EX 522, 639, 665, CE 625 or 635, SH 530, SH 614; EP 850.

Human Development and Learning — (23-27 s.h.) is designed to prepare the teacher to be more effective in the classroom and to have a balanced program in Educational Psychology. Professional Specialization courses (six s.h.) EP 618, 604 or 578, Subject Area and/or Electives (17-21 s.h.) EP 604, 578, 576, 572, 573, 580, 650, 581, AC 520, ED 601, PC 533, 640, EX 522, 639, 665, CE 625 or 635, SH 502, 635, EP 850.

Educational Evaluation and Research — (23-27 s.h.) is designed to provide a broad theoretical and practical background in Educational Evaluation and Research. Professional Specialization (six s.h.) EP 618, 662, Subject Area and/or Electives (17-21 s.h.) EP 604, 578, 576, 572, 573, 580, 581, GR 516, 517, CO 502, EP 850. Thesis required.

CERTIFICATE OF ADVANCED STUDY IN SCHOOL PSYCHOLOGY — POST-MASTER'S DEGREE PROGRAM

A certificate of Advanced Study in School Psychology may be issued to those students who have completed a minimum of 66-69 graduate hours, 33 of which should be approved graduate hours in the university beyond the master's degree, and who have not met all of the requirements for certification as a school psychologist.

The School Psychology Program is designed for those individuals who are seeking certification as public school psychologists in the Commonwealth of Pennsylvania. The objectives of the program are to train competent individuals who will demonstrate (1) an ability to evaluate and prescribe, (2) an understanding of individual and group dynamics, (3) an understanding of the educational system and learning process, and (4) an ability to apply all acquired competencies. There is a required comprehensive exam, practicums, and internship experiences. Certification as a school psychologist is recommended when all of the indicated role competencies are demonstrated by the candidate.

The Professional Specialization studies courses for the program for 21-24 s.h. are EP 611, 612, 613, EP 663 and EP 650-EP 651 (12-15 s.h.). The other approved courses for nine s.h. to meet competency requirements are EX 631, EX 666 or EP 581, and PC 635. For final certification other courses and/or additional internship hours may be required by the School Psychology Committee to satisfy competency requirements.

For descriptions of EX courses, see section on SPECIAL EDUCATION; for PC course, PSYCHOLOGY.

COURSE DESCRIPTIONS

- EP 572 PSYCHOLOGY OF CHILDHOOD EDUCATION 3 s.h.
Studies relationship which physical, social, emotional, and intellectual development have on theory and practice of childhood and pre-adolescent education.
- EP 573 PSYCHOLOGY OF ADOLESCENT EDUCATION 3 s.h.
Concerned with study of significant characteristics of adolescence, and understanding the role of cultural influences on formation of behavior.
- EP 576 BEHAVIOR PROBLEMS 3 s.h.
Explores behavior problems encountered in classroom situations and gives causes, characteristics and some remedial techniques.
- EP 578 LEARNING 3 s.h.
Explores learning theories and educational application in working with learning problems in the classroom.
- EP 581 SPECIAL TOPICS IN EDUCATIONAL PSYCHOLOGY 3 s.h.
Designed for those students who wish to do independent research in special areas.
Prerequisite: department chairperson permission.
- EP 583 EDUCATION OF THE DISADVANTAGED CHILD 3 s.h.
Acquisition of necessary understandings of physiological, psychological, and social implications relevant to working with and teaching disadvantaged children.
- EP 585 HUMANIZING THE CLASSROOM 3 s.h.
An experimental course concerned with human-relations-skills training and particular emphasis on group process, non-verbal communication, listening and responding skills. The focus is primarily on the translation of these skills into effecting productive classroom environments in educational settings.
- EP 587 CHILDREN AND THE LAW 3 s.h.
A course designed to promote a better understanding of our legal system as it affects children within the family and in specific settings including schools, juvenile courts, state institutions, and community agencies.
- EP 588 INTERPERSONAL EFFECTIVENESS AND COMMUNICATION SKILLS 3 s.h.
Designed to increase professional effectiveness and improve communication skills within educational, business, and industrial settings. Includes analysis of non-verbal behaviors, active listening, and rational self-analysis and assertion skills.
- EP 604 ADVANCED EDUCATIONAL PSYCHOLOGY 3 s.h.
An upward extension of Educational psychology with a systematic review of current research and learning theory with emphasis on classroom application.
- EP 611 INTRODUCTION TO SCHOOL PSYCHOLOGY 3 s.h.
Designed for those students who are preparing to function as school psychologists, and includes role concepts and other responsibilities of a school psychologist.
- EP 612 INDIVIDUAL EVALUATION I 3 s.h.
Individual testing and professional competency in Binet and related scales of intelligence and includes techniques of report writing, professional role studies, and communication procedures. Prerequisite: For approved School Psychologist candidates.

EP 613	INDIVIDUAL EVALUATION II	3 s.h.
Individual testing and professional competency in the Wechsler Scales and other pertinent tests Prerequisite: EP 612 — For approved School Psychologist candidates.		
EP 618	INTERPRETATION OF EDUCATIONAL AND PSYCHOLOGICAL TESTS	3 s.h.
Designed to provide the individual with information necessary to understand, evaluate, and interpret results of educational and psychological tests accurately and meaningfully.		
EP 650	INTERNSHIP I	3 s.h.
Supervised experiences in Educational Psychology Prerequisite: For approved candidates.		
EP 651	INTERNSHIP II	3-12 s.h.
Clinical and field experience with mentally and physically handicapped and emotionally disturbed children. Prerequisite: For approved School Psychologist candidates.		
EP 652	INTERNSHIP — HOME AND SCHOOL VISITOR (SCHOOL SOCIAL WORKER)	3-9 s.h.
Supervised experiences for Home and School Visitor (School Social Worker) candidates. Prerequisite: For approved candidates.		
EP 662	PSYCHOTHERAPY AND GROUP DYNAMICS	3 s.h.
A systematic study of major techniques of counseling and psychotherapy, and application of principles of group dynamics to educational settings		
EP 663	PROJECTIVE TECHNIQUES	3 s.h.
An introduction to various personality and behavior assessment techniques currently used. Prerequisite: For approved School Psychologist candidates.		

ELEMENTARY EDUCATION

The Elementary Education master's curriculum is designed to assist the graduate student to broaden or strengthen background in academic areas and in professional education. The graduate student may elect one of several specialized fields of study, including curricula in general elementary education, early childhood education, and reading.

Upon admission to any of the Elementary Education programs, students will be notified of an adviser by the Coordinator of the specific program. At this time, the student and adviser outline a tentative program of studies.

MASTER OF EDUCATION IN ELEMENTARY EDUCATION

Students working toward a master's degree in Elementary Education should complete 30 semester hours of work (thesis option) or 36 semester

hours of work (non-thesis option) from the following areas: Nine semester hours in Professional Development, including a Foundations of Education course, a Behavioral Studies course. Elements of Research; six semester hours in a Specialization Core; 18 semester hours of Elementary Education electives; and EL 680. Seminar in Advanced Research. With the approval of the coordinator, when appropriate, six semester hours of workshop credit or graduate electives may be applied to the master's degree.

GRADUATE PROGRAMS IN EARLY CHILDHOOD EDUCATION

Students seeking Instructional Level II certification with a specialization in early childhood education or a master of education degree specializing in early childhood must complete the following requirements: a minimum of 24 s.h. is required for the Instructional II certificate or 30 s.h. minimum is required for the master of education degree program. Courses scheduled by the student should have the approval of the student's adviser. Students entering the program must have an Instructional I Certificate in elementary education.

Students pursuing the M.Ed. with an Early Childhood concentration must complete 30 s.h. (thesis option) or 36 s.h. (non-thesis option) from the following areas: nine semester hours in Professional Development, including a Foundations of Education course, a Behavioral Studies course, and Elements of Research; six s.h. in Specialization Core; 18 s.h. of Elementary Education electives including EL and EE courses; and EL 680, Seminar in Advanced Research. With the approval of the coordinator, when appropriate, six s.h. of workshop credit or graduate electives may be applied to the master's degree.

THE DOCTORATE IN ELEMENTARY EDUCATION

The Doctor of Education degree in elementary Education is designed for those who wish to teach at the college or university level or who desire to work in a teaching, supervisory, or administrative capacity. A candidate for this degree is expected to acquire a broad knowledge of various aspects of education, and to demonstrate, through the completion of an acceptable dissertation, the ability to conduct an independent investigation of a topic approved by an advisory committee.

The first step toward the doctorate is to seek admission to course work beyond the master's degree. After the student has completed nine hours and prior to 15 hours of advanced work at IUP, he/she can apply for candidacy. To become a candidate a student must meet the requirements of The Graduate School and the Elementary Education Department. Applicants are reviewed on the basis of acceptable scores on the Graduate Record Examination, performance in course work, professional recommendations, and successfully passing a written and an oral examination administered by the department.

After admission to candidacy the student will be assigned to an advisory committee. This committee will assist the student in preparing a final plan of study. The comprehensive examination will be both written and oral and will include a major and a second concentration field.

No specific number of credits entitles a student to the degree, but a minimum of 90 hours of credit, properly distributed, must be earned beyond the bachelor's degree.

Statistics and computer science are required to complete the research area of study.

A supervised internship and a period of residency will be required of all candidates for this degree. Ordinarily the internship will consist of working for a semester or a summer in an educational experience unlike one already experienced by the candidate.

A complete description of the Doctor of Education program in Elementary Education can be obtained from the Department of Elementary Education, Davis Hall.

COURSE DESCRIPTIONS

**EE 660 EARLY CHILDHOOD STUDY TECHNIQUES
AND ASSESSMENT TOOLS**

3 s h

Designed to provide the student with a specific method of studying children from three through eight years. Students learn to observe, record and analyze pertinent information, and to suggest ways to help children toward positive self development. Tests for assessment of the young child in areas of perception, concept development, self-inventories, general intellectual ability, readiness, and academic ability will be examined, administered, and interpreted.

**EE 661 EARLY CHILDHOOD PHILOSOPHY CURRICULUM.
AND MATERIALS**

3 s.h.

Introduces students to philosophy and historical background of pre-school education and their influences on current programs and curriculum. Curriculum patterns and strategies, including available materials, for schools for the younger child are introduced and evaluated.

EE 662 EARLY CHILDHOOD FIELD STUDY EXPERIENCES

3 s.h.

Includes direct observation and teaching in early childhood programs. Seminar sessions will be directed toward the study of appropriate strategies with immediate application with children. Students will be expected to meet the individual needs of children they are teaching. Close supportive relationships with parents and community will be stressed. Prerequisites: EE 660, EE 661, EE 664

EE 664 EARLY CHILDHOOD CURRICULUM IN PRIMARY GRADES

3 s.h.

Based on developmental levels of children students understand the appropriate concepts and strategies which should be included in the primary grade component of early childhood

EE 665 ISSUES IN EARLY CHILDHOOD EDUCATION

3 s.h.

Focuses on the major controversies facing the early childhood educator. Opposing viewpoints will be presented for review, reaction and debate. Students will be encouraged to establish priorities and clarify value systems to arrive at solutions to the critical issues.

EE 666 EVALUATION OF PROGRAMS FOR YOUNG CHILDREN

3 s.h.

Analysis of extant early childhood programs. Examination of early intervention projects and materials, review of research findings and implications, cross-cultural comparisons of preschool programs. Prerequisites: EE 661, 664, or permission of the instructor

**EL 510 SEMINAR IN ELEMENTARY SCHOOL EVALUATION
AND ACCREDITATION**

3 s.h.

In conjunction with the Assembly of Elementary Schools of the Middle States Association, provides instruction and field practicum in elementary school evaluation, planning and accreditation. Books and supplies provided by Middle States Association. Provides leadership training for students interested in developing school evaluation plans and serving on accreditation teams

ED 631 CURRICULUM DEVELOPMENT

3 s.h.

Students will learn curriculum development by differentiating among educational goals, objectives and learning activities. Sources of curriculum goals and objectives such as needs assessment, philosophical models and psychological models will be studied. The design and selection of learning activities as well as designs for evaluating the effectiveness of curricula also will be considered.

**ED 632 SYSTEMATIC OBSERVATION OF
CLASSROOM BEHAVIOR**

3 s.h.

Students will learn how to code classroom verbal interaction through actual demonstration, video tapes, and audio recordings, with emphasis on various teaching strategies, monitoring verbal interaction, and supervisory sessions. Designed for elementary majors, curriculum supervisors, and students majoring in secondary and supervisory behavior.

EL 641 RECENT TRENDS IN SOCIAL STUDIES

3 s.h.

Specific problems with curriculum, teaching, and learning experiences and evaluation are stressed. Each student will research a special problem or area of interest.

EL 642 MATHEMATICS IN ELEMENTARY SCHOOL

3 s.h.

Experiences with manipulative materials, games and puzzles, activity centers, and lab approach to mathematics. Inexpensive mathematics lab equipment will be constructed. Sources of literature and materials will be presented and used. Opportunities will be given to write activity and problem cards and to plan mathematics activity centers. Psychological foundations and mathematics structure will be used as reference for suggested activities and curriculum studies.

EL 643 RESOURCE MATERIALS IN ELEMENTARY SCIENCE

3 s.h.

An introduction of underlying philosophy and use of materials of several of the current national curriculum programs in elementary science. Emphasis is placed on following programs: (1) Science: A Process Approach (SAPA), (2) Elementary Science Study (ESS), (3) Science Curriculum Improvement Study (SCIS), and (4) Conceptually Oriented Program in Elementary Science (COPES), including micro-teaching techniques and development and preparation of individualized self-instruction modules. Students are required to work with various program materials.

EL 644 RECENT TRENDS IN LANGUAGE ARTS

3 s.h.

Designed to help students to direct more effective communication through study of problems, recent trends and contributions of research in the broad fields of listening, oral and written communication.

EL 645 EXPERIMENTAL STUDIES IN ART EDUCATION

3 s.h.

Teachers will undertake art experiences in various media as they are adapted to provision of art experiences for the child. Emphasis will be placed on stages of growth, type of motivation, and ways of administering stimuli. Perceptual awareness and understanding and appreciation of visual art forms and their importance in the lives of people in our town and other cultures will be developed along with study of the exceptional child to recognize and encourage evidences of art potentials as well as wholesome self-expression.

**EL 646 MODERN PROCEDURES & SKILLS IN
ELEMENTARY MUSIC**

3 s.h.

New dimensions in thinking about elementary music for children. Emphasis is placed on the young student discovering interesting aspects of music — sounds, rhythm through movement, use of percussive and simple method instruments, and music of countries. (Music Staff)

**EL 647 RESOURCE MATERIALS IN
CHILDREN'S LITERATURE**

3 s.h.

Evaluation and selection of literature as a classroom resource for teaching and learning, including illustrations, folklore, poetry, modern and traditional fiction and non-fiction.

EL 648 CREATIVITY AND THE ELEMENTARY SCHOOL CHILD 3 s.h.

Includes a study of creative thinking and ways to develop creativity in children including strategies and techniques to use in the classroom. Ways of measuring creativity and analyzing the role of the teacher are included. Students are encouraged to develop their own creativity.

ED 650 SCHOOL AND COMMUNITY

3 s.h.

Development and maintenance of a purposeful program of communication between the school and the community through study of selection, organization and functions of citizens advisory committees and cooperative use of various community services.

EL 651 RECENT INNOVATIONS IN ELEMENTARY EDUCATION 3 s.h.

Newer trends in classroom procedure, equipment, and materials as well as problems involved in improvement of instruction. Whenever possible sessions will be held to demonstrate and use recently developed materials. Individual research and field trips into many of the new programs in elementary education.

ED 652 SCHOOL EVALUATION

3 s.h.

Current models for both formative and summative evaluations are presented with emphasis on their application to school programs and other educational projects. Prior knowledge or experience in curriculum development and/or project proposals would be helpful but not required.

**ED 653 SUPERVISION AND THE IMPROVEMENT
OF INSTRUCTION**

3 s.h.

Purposes, patterns, processes, and products of the supervision of instruction with emphasis on the supervisor as the educational leader whose concern is improvement of instruction through the on-going growth and professional development of his/her staff.

**EL 655 RECENT TRENDS IN HUMAN DEVELOPMENT
AND LEARNING**

3 s.h.

Concerned with the literature and recent research in the field of human development and learning and how they relate to the education of children. Characteristics of the learner and the developmental aspect of children will be stressed.

EA 656 SCHOOL ADMINISTRATION

3 s.h.

Designed as basic course in school administration, intended to serve as an introduction to principles and practices of school administration for students who aspire to a supervisory or administrative position in public schools. Human aspects of educational administration are emphasized.

EA 657 SCHOOL PERSONNEL ADMINISTRATION

3 s.h.

Designed to provide background for potential principals and supervisors in matters pertaining to functions of various types of personnel employed in schools. Knowledge of organizational practices for proper and effective utilization of personnel and recognition of administrator's role in providing services to both staff and pupils.

- ED 658 SCHOOL LAW AND NEGOTIATIONS 3 s.h.
An understanding of legal principles as they pertain to functions of personnel in public school system and to persons engaged in education. Study of statutory enactments, review of court actions through case studies, and analysis of collective negotiation laws and cases.
- EL 659 ADMINISTRATION OF THE ELEMENTARY SCHOOL 3 s.h.
Principles and techniques of elementary school administration. Administrators will be viewed as leaders of teachers, children, non-professional staff and the community to develop and maintain the best educational system possible.
- EL 677 SUPERVISED INTERNSHIP 6 s.h.
A carefully planned field-based on internal work experience proposed by the advanced graduate student to extend professional competence, subject to approval by advisory committee. Registration only by permission.
- EL 678 SEMINAR IN ELEMENTARY EDUCATION INTERNSHIP 3 s.h.
Provides opportunities for in-depth study in special areas in elementary education. Designed primarily for doctoral and post master's candidates. Registration by permission only.
- EL 680 SEMINAR IN ADVANCED RESEARCH 3 s.h.
This course focuses on the application of experimental and survey designs within the school setting. Students will be expected to use the computer in analyzing a research project. Students will be able to interpret factorial analysis of variance, analysis of covariance, and also some non-parametric research designs.
- EL 681 SPECIAL TOPICS IN EDUCATION 3 s.h.
Designed for the students who wish to do independent research in special areas.
- EL 699 INDEPENDENT STUDY IN ELEMENTARY EDUCATION 1-3 s.h.
Students will select one or more topics which are of critical importance in elementary education and will meet staff members for independent reading, study, analysis, and evaluation. Registration only by permission of Graduate Committee.
- EL 850 THESIS 3 s.h.
For students writing a thesis. Should be scheduled for the semester in which the student plans to complete his/her work. All thesis writing involves a committee composed of the student's adviser, two additional faculty members, and the Associate Dean for Research.
- EL 950 DISSERTATION 1-12 s.h.
Students preparing a doctoral dissertation for credit must register for this course. Number of credits assigned and the extent of time for which research activity is scheduled depend on nature and scope of student's research problem and his/her general doctoral program.
- NOTE: Credits for both thesis and dissertation, if not completed during the semester scheduled, are recorded as RESEARCH IN PROGRESS. They remain so until the paper is approved. They DO NOT automatically revert to the grade "F" in a specific length of time. Also, thesis and dissertation can be programmed above the regular load.
- N.B. Candidates wishing to select on emphasis in Reading are referred to the Reading section of this catalog.

ENGLISH

A candidate for a master's degree in English may choose a program leading to either the Master of Education or the Master of Arts. The choice will depend on the background of the candidate and his/her purpose of pursuing graduate study. Both programs share a common aim of increasing the candidate's knowledge of English language and literature and introducing the student to the discipline of advanced study. In addition, the Master of Education degree aims at preparing teachers for public schools.

After a student is admitted to The Graduate School, the Director of Graduate Studies will consult with him or her about the scheduling of courses. The student should apply for the candidacy before 12 credits have been earned.

The writing of a thesis is optional for both the MA and the MEd degree. The English department values writing and research; however, a candidate's decision concerning the thesis should be made on the basis of his/her purposes in obtaining the degree and the extent to which training in research will enhance both professional and personal goals. Under special circumstances and upon request from The Graduate School, a thesis may be written for additional credit after the student has already completed the master's degree without a thesis.

MASTER OF ARTS IN ENGLISH

The MA degree either with or without a thesis requires a minimum of 30 s.h. beyond the bachelor's degree. The candidate who chooses not to write a thesis will take all 30 s.h. in course work. Depending upon the nature of the thesis, the candidate who chooses to do research will take either three or six s.h. of the minimum 30 as thesis and the remainder in course work.

Required of all MA candidates are (1) EN 674 and (2) proficiency in a single language in addition to English. The language requirement may be satisfied by acceptable undergraduate credit of 12 hours, by examination through the Foreign Languages Department at IUP, or by the Graduate School, Foreign Language Test through the Educational Testing Service, Princeton.

The MA candidate may apply a maximum of six s.h. in a related field (e.g. history, philosophy, psychology) toward a satisfying total course requirements. All hours remaining from the minimum 30 hours requirement will be satisfied by courses listed in the catalog EN 529 through EN 699.

MASTER OF EDUCATION IN ENGLISH

The candidate for the MEd has the same thesis option as the candidate for the MA. The MEd candidate must satisfy the following requirements: (1) A Pennsylvania Teacher's Certificate in English or its equivalent from another state (2) Three s.h. in Humanistic Studies: any course from FE 611, 612, 613, 514 (3) Three s.h. in Behavioral Studies: EP 604, EP 573, EP 576, EP 578, EP 580, CE 629, CE 639, or EX 631 (4) Three hours in Research: GR 615 (5) Six hours Specialization Core: EN 603 and EN 693; and (6) Three hours in bibliographical methods: EN 674.

Depending upon choice of thesis options, the candidate will complete the 30 hour minimum requirement by taking from six to 12 hours of electives, chosen from courses EN 529 through EN 699.

There is no foreign language requirement for the MEd.

For description of FE courses, see section on FOUNDATIONS OF EDUCATION; for EP courses, EDUCATIONAL PSYCHOLOGY; for CE courses, COUNSELOR EDUCATION; for EX course, SPECIAL EDUCATION.

For description of GR courses, see entry under "GENERAL SERVICE COURSES," page 41.

DOCTOR OF PHILOSOPHY PROGRAMS

There are two distinct doctoral programs in English, one in English and American literature, and the other in English Education designed for English teachers in the community college. Both programs lead to a Doctor of Philosophy in English.

I. Doctor of Philosophy in English and American Literature

The program leading to the Doctor of Philosophy in English and American literature is designed for those who wish to teach at the college or university level. As such, this plan of study places strong emphasis upon the humanistic tradition in literature, for the values expressed therein are felt to be the essential concern of a liberal arts education. A candidate for this degree is expected to acquire a broad knowledge in limited areas of study and to show through the completion of an acceptable dissertation the ability to conduct an independent investigation of a topic approved by the department. To become a candidate the applicant must meet all The Graduate School requirements for candidacy, as well as the special requirements of the English department. Admission to course work beyond the master's degree does not constitute admission to candidacy for the PhD program. No specific number of course credits entitles a student to the degree, but a minimum of 60 semester hours of credit, exclusive of research credits, must be earned beyond the bachelor's degree. Applications for candidacy will be reviewed by a departmental committee after nine hours of graduate credit have been earned beyond the master's degree and before 16 hours have been completed. In determining whether or not an applicant should be accepted as a candidate for the degree of Doctor of Philosophy, an Advisory Committee will consider the applicant's scores on the Graduate Record Examination, performance in course work, and whenever applicable, performance as a teaching-intern.

On application for candidacy, the candidate will be assigned to an Advisory Committee who will help the candidate prepare a plan of study for a comprehensive examination, both written and oral, which will be taken on the recommendation of the Advisory Committee near the end of course requirements and before registering for EN 950 dissertation credits.

The linguistic requirement for PhD candidates, which must be completed before the comprehensive examinations, may be satisfied by one of the following comparative study options: (1) six graduate credits in theoretical or applied linguistics; (2) six graduate credits in computer languages; (3) foreign language proficiency as measured either by ETA or Foreign Language

Department examinations. The student's Advisory Committee will attempt to suit the language study to the student's needs as a teacher and researcher. Sole authority in determining foreign language proficiency rests with the Advisory Committee.

On approval of the Advisory Committee, a candidate may take as many as nine graduate hours of course work in a minor field in support of major research interest.

Although there are specific requirements for the degree, the professional and educational background of a number of students will make it necessary to waive certain requirements to avoid needless duplication. Decisions to waive requirements will be made by the student's Advisory Committee.

Candidates must demonstrate the capacity to teach effectively, either in the departmental teaching-internship program, or through other acceptable teaching experience. English is required of all candidates.

As this catalog is being prepared, the PhD program in English and American literature is undergoing revisions in order to strengthen its emphasis upon the English teacher as humanist. Both requirements and course offerings can be expected to change. A complete description can be obtained from the English Department or from the Graduate School.

II. Doctor of Philosophy in English (Education)

The program which leads to the Doctor of Philosophy in English is designed for teaching English in the community college or the four-year college. The pre-service candidate for this degree is expected to acquire a thorough understanding of the community college as an institution and to demonstrate, largely through a semester's internship at a community college, the ability to teach effectively.

The in-service candidate for this degree may have the internship waived after a description and evaluation of his/her teaching experiences have been accepted.

Upon admission to the program, the candidate will be assigned to a Program/Evaluation Committee which will, in consultation with the candidate, work out a program of study. The Program/Evaluation Committee will review also the candidate's application for candidacy, which must be submitted after nine hours of graduate credit have been earned and before 15 hours have been completed. Another function of the Program/Evaluation Committee will be to prepare a comprehensive examination, written and oral, for each candidate.

Although there are some general course and research requirements for this degree, they may be waived by the student's Program/Evaluation Committee if they believe the student has already acquired the information or specific competencies which these courses are designed to communicate or develop. These general course requirements are as follows: EN 689, EN 692, EN 631, EN 603, a course in the teaching of literature, nine hours of elective credits in psychology, sociology, communications media, etc.; a dissertation related to English education; a semester's internship at a community college.

As this catalog is being prepared, the program is undergoing revision of requirements and of course offerings. A complete description can be obtained from the English Department or from the Graduate School.

COURSE DESCRIPTIONS

EN 529	HISTORY OF THE ENGLISH LANGUAGE	3 s.h.
Development of phonology, syntax and lexicon as well as rhetorical theories from Old English through Modern English.		
EN 542	CLASSICAL LITERATURE	3 s.h.
Ranges from drama to lyrics and epic poetry in translation.		
EN 560	BRITISH LITERATURE TO 1500	3 s.h.
Intensive study of some major works of Old or Middle English.		
EN 561	CHAUCER	3 s.h.
Major works of Geoffrey Chaucer are studied as literature with emphasis upon pronunciation, versification, language, and textual problems.		
EN 565	BRITISH LITERATURE — RENAISSANCE (1500-1600)	3 s.h.
Investigation of an area of English Renaissance that is not currently treated in course work.		
EN 566	SHAKESPEARE	
In addition to the plays and the scholarship on them, study of the historical theatrical influences that affected Shakespeare.		
EN 569	SEVENTEENTH CENTURY PROSE AND POETRY	3 s.h.
Major writers from the death of Elizabeth to 1660, excluding Shakespeare and Milton.		
EN 570	MILTON	3 s.h.
Major prose and poetry of John Milton and the religious and political controversies reflected in Milton's work.		
EN 579	ENGLISH ROMANTIC LITERATURE	3 s.h.
Works of the major poets and essayists from 1798 to 1832.		
EN 580	VICTORIAN LITERATURE	3 s.h.
Examines major social, political, economic, and religious issues in the works of the leading poets and prose writers from 1832 to 1890.		
EN 581	SPECIAL TOPICS IN LANGUAGE AND LITERATURE	3 s.h.
Allows students to pursue subjects such as textual criticism, prosody, and computers and literature not covered in detail in existing courses.		
EN 590	LITERARY BRITAIN	3 or 6 s.h.
A three- or six-week's tour of major sites important to English literature. Always includes London, Stratford, and Cambridge.		
EN 601	AMERICAN ENGLISH GRAMMAR	3 s.h.
Phonology, morphology and syntax of present-day English, various approaches to analysis of English Grammar, and detailed consideration of problems of dialect and appropriateness.		
EN 603	LINGUISTICS AND THE ENGLISH TEACHER	3 s.h.
Effects of modern linguistic theory on teaching of English, with special emphasis on reading, composition, stylistic analysis, and dialect interference.		
EN 611	MAJOR WRITERS	3 s.h.
Concentrates on one or two major writers of American or British literature, such as Twain, James, Wordsworth, Keats, etc.		

EN 612	THE AMERICAN RENAISSANCE	3 s.h.
	Works of major writers in mid-nineteenth century America.	
EN 613	NATURALISM AND REALISM IN AMERICAN FICTION	3 s.h.
EN 614	MODERN AMERICAN FICTION	3 s.h.
	Special studies in such figures as Dreiser, Anderson, Fitzgerald, Lewis, Dos Passos, and Wolfe.	
EN 615	TWENTIETH CENTURY AMERICAN DRAMA	3 s.h.
EN 616	AMERICAN LITERATURE TO 1870	3 s.h.
	Major writers in Puritan period, early republic, and other phases up to and including the Civil War.	
EN 617	MODERN AMERICAN LITERATURE (from 1870)	3 s.h.
	Study of particular author or group of authors; literary genre, literary movement, restricted period of time, etc.	
EN 631	SEMINAR IN LINGUISTICS	3 s.h.
	Concentrates on a specific aspect of linguistics (e.g. sociolinguistics) to provide stimulus for independent study.	
EN 633	THE PSYCHOLOGY OF LANGUAGE	3 s.h.
	An introduction to psycholinguistics for the English specialist, treating language as a code, acquisition of language and patterns of normal and aberrant human language behavior.	
EN 672	EIGHTEENTH CENTURY PROSE AND POETRY	3 s.h.
	Major figures such as Dryden, Pope, Swift, Johnson, Defoe, Fielding, Sterne, Smollett, Burke, and Godwin.	
EN 673	SEMINAR IN BRITISH DRAMA	3 s.h.
	Ranges from medieval to modern drama; a thematic focus may sometimes be used.	
EN 674	BIBLIOGRAPHICAL METHODS IN ENGLISH	3 s.h.
	Practical training in special methods and materials of research in English. Required of all majors in English except those taking the PhD in English Education. Should be taken early in the program.	
EN 677	SEMINAR IN SHAKESPEARE	3 s.h.
	Emphasis on individual study and research in primary and secondary sources.	
EN 678	SEMINAR IN THE BRITISH NOVEL	3 s.h.
	Focuses on novels of a given century; a thematic focus that ignores time divisions is sometimes used.	
EN 684	MODERN POETRY	3 s.h.
	Study of Modern British or American or European poetry, or any combination of them.	
EN 685	CRITICISM	3 s.h.
	Major statements of critical theory from Aristotle onward. Aims are both historical and aesthetic.	
EN 686	BLACK LITERATURE IN AMERICA	3 s.h.
	Chronological study of Black American writing for students who have had little introduction to Black literature. Emphasis on twentieth century.	

EN 687	LITERATURE AND THE FILM	3 s.h.
Explores relationship between film and literature and the influences that each has had on the other.		
EN 689	ORIENTATION AND FIELD EXPERIENCE IN THE COMMUNITY COLLEGE	3 s.h.
Examines the community college from historical and philosophical perspectives. Includes observations of classes and interviews with staff at community colleges. Specifically for students preparing for careers in the community college. To be taken early in the program.		
EN 692	SEMINAR IN TEACHING BASIC COMMUNICATION SKILLS	3-6 s.h.
Instructs students in teaching of reading or of writing to adults. Reading/writing taught in alternate semesters.		
EN 693	SEMINAR IN TEACHING ENGLISH IN THE SECONDARY SCHOOL	3 s.h.
Explores recent development in teaching of language, composition, and literature.		
EN 698	INTERNSHIP	3-12 s.h.
Practical experience in the student's area of interest, working under professional supervision on the job. Special permission only, dependent upon needs of student's program as well as personal and academic qualifications.		
EN 699	INDEPENDENT STUDY	1-3 s.h.
Study of depth of topics not available through regular course work. Student works with supervising professor on carefully planned, student-initiated project. Prior approval necessary.		
EN 850	THESIS	1-6 s.h.
EN 950	DISSERTATION	1-12 s.h.
NOTE:	Special Topics in Language and Literature, and Major Writers, as well as all seminars, may be scheduled more than once, because subject matter will change with each offering of the course. More complete course descriptions available from the department.	

FOOD AND NUTRITION

The Master of Science Degree Program in Food and Nutrition is designed to increase the student's depth of knowledge in food and nutrition, continue professional growth through development of leadership ability, and increase the student's capacity for independent action in scholarly and professional pursuits. It may also lead to fulfilling the requirements for the American Dietetic Association registration. Courses in intermediate nutrition and biochemistry are required for entrance into the program. A faculty adviser will be assigned to each student.

Professional Core: Elements of Research, 3 s.h. and Statistics I, 3 s.h. are required of all students. Thesis, 4 s.h. is optional. With thesis, 30 s.h. are required; without thesis, 33 s.h. are required for graduation.

Department Core: All students must choose 14 s.h. from courses: FN 544, FN 558, FN 611, FN 642, FN 645, FN 646.

University Core: All students may elect 4-10 s.h. from the IUP Graduate Catalog with approval of their adviser.

COURSE DESCRIPTIONS

FN 510	FOOD, NUTRITION AND AGING	3 s.h.
How food relates to health maintenance and special dietary problems during the middle and later years.		
FN 544	FOOD COMPOSITION AND BIOCHEMISTRY	3 s.h.
Cover basic chemistry and biochemistry of essential components of food originating from plant and animal sources. Pre-requisite: CH 355.		
FN 547	NUTRITIONAL ASPECTS OF FOOD PROCESSING	3 s.h.
Studies current known effects of food processing techniques on the nutritional value and safety of food. Pre-requisites: FN 212, BI 241.		
FN 558	ADVANCED HUMAN NUTRITION	3 s.h.
Nutritional needs and problems occurring during pregnancy, infancy, early childhood, adolescence and aging. Pre-requisites: FN 212, CH 355, BI 151.		
FN 561	MICROWAVE COOKING TECHNOLOGY	3 s.h.
Examines the electronic technology, selection, care and use of the microwave oven. Basic physical and chemical concepts related to microwave cooking. Individual research problem required. Two lectures, two lab hours per week.		
FN 611	NUTRITION IN THE LIFE CYCLE	3 s.h.
Studies body functions at different stages of development under differing environmental conditions and at various levels of biological organization.		
FN 641	CULTURAL ASPECTS OF FOODS	3 s.h.
Investigation and analysis of historical, political, religious, ethnic, environmental, and social influences affecting food habits and customs. Major cuisines of the world and regional U.S. are included.		
FN 642	CONTEMPORARY ISSUES IN FOOD AND NUTRITION	3 s.h.
Current information in foods and nutrition is investigated, analyzed and evaluated for practical implementation.		
FN 643	SEMINAR IN CLINICAL DIETETICS	3 s.h.
Examines nutritional management of the hospitalized patient with emphasis on the role of the dietitian. Research for a paper and seminar presentation required.		
FN 645	PROTEINS, CARBOHYDRATES AND FATS IN NUTRITION	4 s.h.
Nutritional considerations of protein, carbohydrates and fat metabolism. In vitro and in vivo analysis as well as physiologic and biochemical function of these nutrients.		
FN 646	VITAMINS AND MINERALS	4 s.h.
Biochemical role of vitamins and minerals as co-factors in macronutrient metabolism. Focus on biochemical and physiologic functions, research, and analytical methods. Pre-requisite: FN 645.		
FN 652	INTERNSHIP	1-6 s.h.
Supervised work experience for Food and Nutrition majors. Permission: Department Chairman.		

FOREIGN LANGUAGES*

GERMAN

The programs leading to the MA and MEd degrees in German have a number of goals in common and overlap in several areas. Both programs seek to improve the candidate's proficiency in German and to increase the student's knowledge of German culture and civilization. While sharing common aims, each program is flexible enough to be tailored to the individual candidate's purposes and desires for pursuing graduate study.

A minimum of 30 semester hours of graduate work is required, including three s.h. of Elements of Research (GR 615) for the MEd. The thesis is optional (0-six s.h.). The remainder of the courses is to be taken in areas directly related to the student's main field of study. All candidates for advanced degrees in German will also demonstrate their achievement and proficiency by successfully passing comprehensive oral and written examinations on all graduate work in German completed at IUP.

Candidates for the Master of Arts degree must earn a minimum of 18 s.h. of credit in German courses (GM 610 through GM 653) and provide evidence of proficiency in a second foreign language. Candidates for the Master of Education degree must earn a minimum of 15 s.h. in German courses and successfully complete one course in the area of Foundations of Education.

For description of GR courses, see entry under "GENERAL SERVICE COURSES," page 41.

Duisburg program: IUP students can take up to 10 credits at the University of Duisburg in the Federal Republic of Germany.

COURSE DESCRIPTIONS

GM 610 HISTORY OF THE GERMAN LANGUAGE 3 s.h.

History and development of German language, with special emphasis on relationships with English. Analysis of annals in Gothic, Old High German, and Middle High German using methods of historical and contemporary linguistics.

GM 611 ADVANCED COMPOSITION & STYLISTICS 3 s.h.

Development of abilities in German composition and stylistics which will lead to greater facility and accuracy in writing German.

GM 612 ADVANCED ORAL PRACTICE 3 s.h.

Designed to achieve fluency and accuracy in spoken German by using various media to provide framework for guided discussions of current topics.

GM 613 GERMAN PHONETICS 3 s.h.

Analysis of physiological and linguistic factors of spoken German. Practice on critical areas of German pronunciation and intonation, with special emphasis on potential interferences between German and English.

*Potential applicants should discuss with the Graduate School the availability of course offerings in the foreign languages before submitting an application for admission.

GM 620 SEMINAR ON GERMAN LANGUAGE	3 s.h.
In-depth study of structure and grammar of the language.	
GM 630 SEMINAR ON GERMAN CULTURE	3 s.h.
In-depth study of German culture from either an historical, fine arts perspective or from an anthropological, sociological point of view. Independent research with oral and/or written reports required.	
GM 640 SEMINAR ON GERMAN LITERATURE	3 s.h.
In-depth study of particular author, or genre requiring independent research. Seminar topics to vary on a rotating basis, depending on staff and student interest.	
GM 653 ADVANCED METHODOLOGY	3 s.h.
Demonstrations and discussions of current teaching strategies to provide teachers of German with greater expertise in dealing with problem in motivation, articulation, and other pedagogical concerns. Topics vary from time to time, depending on background and experience of participants involved.	
GM 699 INDEPENDENT STUDY	1-3 s.h.

SPANISH

The Spanish Division of the Foreign Languages Department offers programs of study leading to either the Master of Arts or the Master of Education degree in Spanish Language and Literature. The MA degree is recommended to those who plan to pursue studies towards the PhD degree. The MEd degree in Spanish Language and Literature is designed especially for those who plan a career as secondary school teachers or those already employed as teachers in a school system. Geared to both full and part-time students, since its inception in 1966, the program has served more than 100 graduate students.

MASTER OF ARTS IN SPANISH LANGUAGE AND LITERATURE

Candidates for the MA degree in Spanish Language and Literature must successfully complete a minimum of 30 s.h. of which at least 24 s.h. are to represent the area of concentration as well as a minimum of four different literary epochs chosen from courses in Peninsular and/or Spanish American literature. Required courses for the MA degree are: SP 600 or SP 601 and SP 606. Thesis is optional; if the candidate chooses the "No Thesis" option, he/she must complete 33 s.h. with a minimum of 27 s.h. in the area of concentration. For admission to degree candidacy the student must demonstrate a reading knowledge of a second foreign language acceptable to the department.

MASTER OF EDUCATION IN SPANISH LANGUAGE AND LITERATURE

Candidates for the MEd degree in Spanish Language and Literature are required to successfully complete 30 s.h. with distribution as follows: A minimum of 15 s.h. in Spanish area studies which must represent courses chosen from at least three different literary epochs in Peninsular and/or Spanish American literature. One course in Foundations of Education (three s.h.) to be selected from among: FE 611, 612, 613, 514. One course (three s.h.) to be chosen from among the following Behavioral Studies: EP 604, EP 573, EP 576, EP 578, EP 580, CE 629, CE 639 or EX 631. GR 615 Elements of Research is required of all students in the MEd program. Two courses or six s.h. from among the following: FE 515, CM 600, SP 605. Required courses in Spanish are: SP 600 or SP 601 and SP 606. If the student chooses the "No Thesis" option, he/she must then complete 18 s.h. in Spanish or a total of 33 s.h. For admission to degree candidacy the student must demonstrate a satisfactory reading knowledge of a second foreign language acceptable to the department.

For description of FE courses, see section on FOUNDATIONS OF EDUCATION; for EP courses, EDUCATIONAL PSYCHOLOGY; for CE courses, COUNSELOR EDUCATION; for EX course, SPECIAL EDUCATION; and CM course, COMMUNICATIONS MEDIA.

For description of GR courses, see entry under "GENERAL SERVICE COURSES," page 41.

Curriculum for the MA and MEd Degrees in Spanish Language and Literature

I. Spanish Language and Literature (Area of Concentration) Courses SP 600 through 699 provide subject matter content in the area of specialization for both the Master of Arts and the Master of Education degrees. MA candidates are to complete 24 to 30 s.h. and MEd candidates a minimum of 15 to 18 s.h. chosen from these courses some of which represent required courses. FL 525 Valladolid Program for which six s.h. will be allotted is optional provided that the candidate has not elected the Valladolid program as an undergraduate.

II. Related Studies

A limited number of graduate credits may be elected from related areas of study with departmental approval.

COURSE DESCRIPTIONS

FL 521 LANGUAGE AND SOCIETY

3 s.h.

Salient facts of language and its fundamental role in development and continuity of society and culture, including language families and their characteristics, factors of linguistic change and development, reciprocal influences of culture and language, linguistic borrowing, psycholinguistics, and systems of writing (Open to majors and non-majors.)

FL 525 FOREIGN STUDY — VALLADOLID (Optional) 6 s.h.
Intensive study of Spanish language and culture at the University of Valladolid, Spain, from approximately January 7 to May 30. For detailed description consult the IUP publication "The Pennsylvania — Valladolid Study in Spain Program."

SP 580 FOREIGN STUDY — JALAPA (Optional) 1-3 s.h.
Intensive study of Spanish language and Mexican culture at the University of Veracruz in Jalapa, Mexico, from approximately July 7 to August 20. Credits subject to approval of the Director of the Program.

Hispanic Graduate Studies

Series 600-605: Philology, Stylistics, Grammar and Methodology.

SP 600 HISTORY OF THE SPANISH LANGUAGE 3 s.h.
Traces phonological, morphological, lexical and syntactical evolution of Castilian dialect from its origins in Vulgar Latin through its development, perfection and ultimate recognition as the official language of Spain and Spanish America. Places Castilian linguistically with relation to other Romance Languages and considers features peculiar to Spanish of Latin America.

SP 601 ADVANCED GRAMMAR, COMPOSITION
AND CONVERSATION 3 s.h.
Advanced grammar composition and oral fluency intended to substantially improve understanding of Spanish grammar and syntax, increase vocabulary and command of language, and to provide opportunity for acquisition of poise and ease of self-expression.

SP 605 METHODOLOGY OF FOREIGN LANGUAGE TEACHING 3 s.h.
Improvement of teaching skills and an increased understanding and awareness of implications of current research to foreign language teaching and learning theory as well as development of strategies for testing and evaluation of student learning and exploration of curricular innovations.

SP 606 METHODS OF RESEARCH, CRITICISM, AND STYLISTICS 3 s.h.
Acquaints students with tools of research in the field. MLA style sheet, histories of literature, historical grammars, dictionaries, literary criticisms, recognized collections of literary texts, critical editions and monograph studies as well as various scholarly journals devoted to romance philology and literatures. Introduction to history of Spanish literary criticism and to stylistics as a tool of literary analysis applied to representative works of various epoch styles.

Spanish Peninsular Literature

Series 610-650

SP 610 MEDIEVAL SPANISH LITERATURE 3 s.h.
Reading and discussion of various medieval genres: epic poetry (*Julgaria* and *clerecia*); lyric and didactic poetry; prose (Alfonso X and selections from the *Cronica general*, the *Partidas*, the *Cantigas*, etc.; Juan Manuel and the apologue); *Danza general de la Muerte*, the debate and the medieval drama.

SP 615 PHOTO-RENAISSANCE LETTERS AND MASTERPIECES 3 s.h.
Critical appreciation of transitional literary forms of XV century Spain: poetry and the *Cancioneros* and the *Romancero*; prose (history, biography and satiric-didactic literature, apologues). Special emphasis on *Libro de buen amor* and *La Celestina*.

- SP 620 RENAISSANCE AND HUMANISM 3 s.h.
Consideration of cultural contributions of Spanish Christian Humanism together with a careful study of Renaissance lyric poetry (Italianate and traditional veins); the epic; the novel (in its various forms); Pre-Lopesque theater; the dialogue; ascetic and mystical prose and poetry; history.
- SP 625 THE SPANISH BAROQUE 3 s.h.
An insight into typical Baroque themes, motifs and stylistic devices through analysis and interpretation of important works of XVII century authors. Poetry (lyric and epic); prose (novel and novella); literary criticism and polemics; drama.
- SP 626 GOLDEN AGE DRAMA 3 s.h.
Readings and interpretations of major dramatists (Lope and Calderon) and examination of XVII century drama, its peculiar national character, and its relationship to contemporary society and culture.
- SP 630 NEOCLASSICISM AND ROMANTICISM 3 s.h.
Compares and contrasts cultural and ideological expression of XVIII century Spain — both French cultural influence and popular reaction to the trend — as manifested in the prose (polemic, erudite, narrative and philosophic), poetry and theater of the period to artist and literary aesthetics of the first half of XIX century Spain as reflected in poetry, novel, drama and literary perceptive of her imported Romanticism together with an appreciation of the late romantic Bécquer.
- SP 635 COSTUMBRISM, REALISM AND NATURALISM 3 s.h.
Studies and analysis of "Artículos de costumbres" and especially several trends in the novel of latter half of the XIX century in Spain. (Fernan Caballero, Alarcón, Valera, Pereda, Palacio Valdés, Pardo Bazán, Blasco Ibáñez, Clarín and Pérez Galdós).
- SP 640 GENERATION OF 1898 3 s.h.
A critical excursion into minds of the last XIX and early XX century novelists and thinkers and their works. Emphasis on novels and essays of Unamuno, Ganivet, Azorín, Baroja, Valle-Inclán, Ortega y Gasset and Pérez de Ayala.
- SP 645 MODERNISM, CONTEMPORARY AND POST-CONTEMPORARY POETRY
Study and analysis of lyric poetry in Spain from Modernism and its evolution to present.
- SP 650 SPANISH LITERATURE OF THE XX CENTURY 3 s.h.
Trends in Spanish Novel after Civil War. A) 1940-1961: *Tremendismo* and testimonial novel; Social Realism and Objectivism. B) 1962 to present; reaction against Social Realism and Objectivism; new tendencies. C) short story. D) study and interpretation of Spanish theater from generation of 1898 to present.
- Spanish American Literature and Culture**
- SP 581 SPECIAL TOPICS 3 s.h.
Study of an author, genre, epoch or literary movement.
- Series 655-699
- SP 655 PRE-COLUMBIAN LITERATURE AND SPANISH AMERICAN CIVILIZATION 3 s.h.
Literature, art, myth and thought of Indian civilizations of Latin America with emphasis on Aztecs, Mayas and Incas as well as history and culture of Spanish America, Spanish American character, traditions and ideology from its origins to the present.

SP 660	COLONIAL PERIOD	3 s.h.
Representative chroniclers, poets and dramatists from the letters of Columbus to end of the XVI century together with a study of various literary genres during the XVII and XVIII centuries in Spanish America with special emphasis on Baroque and Neoclassical trends.		
SP 665	ROMANTICISM AND GAUCHESQUE LITERATURE	3 s.h.
A detailed study of the Romantic period, its European influences and unique characteristics of Romanticism in Spanish America with representative poets, novelists and essayists read against the XIX century historical background. Development of Gauchesque genre in Argentina and its characteristics, interrelated with the geographical, historical and social background with emphasis on Gauchesque poetry.		
SP 670	MODERNISM	3 s.h.
Modernistic movement of Spanish American literature history, and its relation to certain European artistic trends and movements. Aesthetic principles of modernism together with its renovation in themes, vocabulary, syntax and versification will be seen as reflected in the criticism and works of the movement's outstanding authors.		
SP 675	POST-MODERNISM AND AVANT-GARDE POETRY	3 s.h.
A study of the reaction against modernism as characterized by new techniques of post modernistic poetry, followed by an analysis of historical and socio-cultural situation of "avant-garde" movements. Discussion of characteristics of works of major Spanish American "avant-garde" poets.		
SP 680	REGIONALISTIC NOVEL	3 s.h.
A study of the "maestros" of Spanish American regionalism of the early XX century, including novelists Gallegos, Rivera, Azuela, Guiraldes, Icaza, Algeria, etc.		
SP 685	XX CENTURY SPANISH AMERICAN LITERATURE	3 s.h.
Literary expressions in Spanish America from end of the XIX century to present.		
SP 690	CONTEMPORARY NOVEL AND SHORT STORY	3 s.h.
Major contemporary novelists and short-story writers (Borges, Onetti, Cortazar, Carpentier, Rulfo, Garcia Marquez, etc.), with an examination of their major themes, techniques and stylistic features.		
SP 695	THE SPANISH AMERICAN ESSAY	3 s.h.
Development of theory and ideological essay from the last two decades of the XIX century to present with stress on contemporary period. Essays will be read both as a literary genre and as a vehicle of ideas against the historical background.		
SP 699	INDEPENDENT STUDY	1-3 s.h.

FOUNDATIONS OF EDUCATION

The Foundations of Education Department seeks to expose its students to a systematic inquiry into educational theories and practices through a philosophical, sociological, historical, and comparative analysis. Foundations study generates criteria for judgment and helps to formulate a Gestalt of various subjects. It also helps to develop an integral cross sectional view of education, while augmenting the construction, clarification, and evaluation of educational goals necessary for development of effective methods of instruction. Furthermore, it broadens perspectives and deepens analysis of policies and programs which help educational personnel find meaning and value in all educational activities.

COURSE DESCRIPTIONS

FE 514 COMPARATIVE FOUNDATIONS OF EDUCATION 3 s.h.

Educational theories and practices in different nations will be studied. Educational purposes, curriculum, methods, administration, school systems, teacher education, and other educational features in America and those in other nations, will be analyzed, evaluated and compared.

FE 515 CURRICULUM DEVELOPMENT 3 s.h.

Analysis of philosophical, sociological, and psychological basis for creation of curriculum patterns. K-14. Includes utilization of technological devices, critical examination of basic concepts underlying determination of objectives, selection and organization of subject matter and of learning experiences in general. Current curriculum research will be analyzed, as will existing instructional materials and programs.

FE 595 INTERNATIONAL EDUCATION STUDIES PROGRAMS 3 s.h.

A travel-seminar conducted in a foreign country and designed to afford educators and students of education the opportunity to investigate teaching-learning process in cultural settings other than their own. Particular attention to such current educational issues as theories of curriculum development, methodology, teacher education, and changing value systems.

FE 611 HISTORICAL FOUNDATIONS OF EDUCATION 3 s.h.

Study of historical development of American education. European influences on philosophies and practices of American schools will serve as a background. Emphasis on development of education in America as influenced by various individuals and schools of thought. Historical trends will be related to current problems and practices in education.

FE 612 PHILOSOPHICAL FOUNDATIONS OF EDUCATION 3 s.h.

Analysis and evaluation of basic philosophies and their impact upon education. Nature, value, means and ends of education and some other fundamental phases of schooling will be thoroughly examined. Stress on essentials enhancing an individual working philosophy of education, basic ideas heightening a sound philosophy for American schools

FE 613 SOCIAL FOUNDATIONS OF EDUCATION 3 s.h.

Social and cultural forces which influence education. Particular stress on current problems as they relate to entire educational system and to curricular problems and practices in today's schools.

FE 616 PROFESSIONAL NEGOTIATIONS IN EDUCATION 3 s.h.
Study dimension of professional negotiations process in educational sector. Instructional tools will be case studies, lecture-discussion and reading assignments. Guidelines of public policy affecting public employer-employee relations will also be evaluated and analyzed.

FE 699 INDEPENDENT STUDY 1-6 s.h.

GEOGRAPHY AND REGIONAL PLANNING

Degree programs provide students with common core of course work in geographic philosophy, research, and techniques. Students may elect to take a subject matter concentration in regional development, regional planning, or cartography.

Graduates of the program are employed by the state and federal government, city, county and regional planning commissions, private consultant firms, business and industry, and secondary schools, colleges and universities. Knowledge of spatial location patterns and processes and environmental concerns; the planning field, its organization, and operation; and geographic and cartographic skills, including computer application is of value to the graduate in the job search.

Students usually hold bachelor's degree in geography or one of the social sciences. Persons with degrees in education, science or business find a degree in geography of value.

Three master's programs are offered. The MA and MS degrees in geography require a common core of courses. Thereafter, the MA candidate is free to take any geography course offered; the MS candidate elects a concentration. The MEd in geography is available to educators.

Students may elect a thesis or non-thesis option. A minimum of 30 s.h. is required for the degree with thesis: 36 s.h. are required without a thesis. Students may apply course work in related fields to the degree with their adviser's permission.

MASTER OF ARTS AND MASTER OF SCIENCE IN GEOGRAPHY

- I. Core Program (nine s.h.): Thought and Philosophy in Geography and Planning; Elements of Research in Geography and Planning; Quantitative Techniques in Geography and Planning.
- II. Electives and/or Thesis (21-27 s.h.)
 - A. The MA candidate elects 15-20 s.h. in geography and related fields with the thesis (one to six s.h.) and 27 s.h. without thesis.

- B. The MS candidate takes a concentration in regional development, regional planning and cartography (12 s.h. minimum), elects three to nine s.h. in geography and related fields with thesis (one to six s.h.) and 15 s.h. without thesis. Six s.h. in internship may be included.

MASTER OF EDUCATION IN GEOGRAPHY

- I. Professional Development Area: (nine s.h.) Humanistic Studies (three s.h. from the following): FE 611; FE 612; FE 613; FE 514; Behavioral Studies (three s.h. from the following): EP 604; EP 573; EP 576; EP 578; EP 580; CE 629; CE 639; EX 631; Research (three s.h. required of all students): GR 615.
- II. Specialization Core (six s.h. from the following list): FE 515, CM 600, GE 670.
- III. Subject Area and/or Thesis: 15 s.h. in geography.

For description of FE courses, see section on FOUNDATIONS OF EDUCATION; for EP courses, EDUCATIONAL PSYCHOLOGY; for CE courses, COUNSELOR EDUCATION; for EX course, SPECIAL EDUCATION for CM course, COMMUNICATIONS MEDIA.

For description of GR courses, see entry under "GENERAL SERVICE COURSES," page 41.

COURSE DESCRIPTIONS

GE 511 THOUGHT & PHILOSOPHY IN GEOGRAPHY & PLANNING 3 s.h.
History of the disciplines, great ideas, leading professionals, and unresolved issues are dealt with

GE 513 CARTOGRAPHY 3 s.h.
Develops ability to map and diagram human and environmental phenomena. Special maps, charts, and diagrams will be considered as required by students. Recommended for all master's candidates.

GE 514 MAP & PHOTOGRAPH INTERPRETATION 3 s.h.
Develops skill in extracting information and synthesizing data from maps and aerial photographs as applied to geologic, land use, economic and transportation problems.

GE 515 REMOTE SENSING 3 s.h.
Methods of remote sensing such as thermal sensing, multi-spectral scanning, satellite imagery, side-looking airborne radar imagery, and additive color analysis and their applications, particularly as applied to geographic and planning problems are studied.

GE 531 POPULATION GEOGRAPHY 3 s.h.
Spatial variations in numbers, characteristics and dynamics of human population, models and theoretical constructs relevant to demographic structures and processes are studied.

GE 532 URBAN GEOGRAPHY	3 s.h.
Analysis of city types, patterns and functions as influenced by geographic conditions and other factors. City planning techniques and field study are utilized	
GE 534 POLITICAL GEOGRAPHY	3 s.h.
Geographic factors and conditions are analyzed as they relate to character and function of states. Political institutions are evaluated in light of geographic conditions.	
GE 540 CONSERVATION: ENVIRONMENTAL ANALYSIS	3 s.h.
Problems of exploitation and utilization of regional resources, i.e. soils, minerals, forests, and wildlife in relation to population growth and regional planning and development.	
GE 550 REGIONAL GEOGRAPHY	3 s.h.
Various regions of the world may be dealt with, such as Latin America, Africa, or South Asia when there is sufficient student demand. Physical, environmental, cultural and population patterns are considered.	
GE 551 GEOGRAPHY OF PENNSYLVANIA	3 s.h.
Regions of Pennsylvania are examined in detail to identify man-environment relationships. Soils, topography, climate, vegetation, population and economic patterns are studied	
GE 560 INTRODUCTION TO PLANNING	3 s.h.
Introduction to field of planning on city, metropolitan, regional and county levels. Included are: intergovernmental context and legislative basis for planning; the comprehensive plan; plan implementation; and the planning agency	
GE 561 PLANNING: BASIC STUDIES & ANALYSIS	3 s.h.
Research, analytical design and plan-making techniques in urban and regional planning. Examines basic items necessary to prepare urban and regional comprehensive plans. Prerequisite: GE 560	
GE 562 PLANNING: DEVELOPMENT OF PRINCIPLES & THEORY	3 s.h.
Examines process of city planning during ancient, medieval, renaissance and modern periods. A review of early planning in America as well as present city planning is included. Prerequisite: GE 560.	
GE 563 PLANNING DESIGN	3 s.h.
Presents concepts of city, subdivision and transportation design in relation to topography, natural resources and other physical elements. Prerequisite: GE 560	
GE 564 LAND USE POLICY	3 s.h.
Basic concepts of land use policy at the national, regional, county and local levels are treated. Analysis is made of the various land use policies	
GE 571 AEROSPACE WORKSHOP	3 s.h.
Workshop conducted with visiting aerospace authorities on space, environment, history of flight, flight problems, satellites, space probes, space exploration, etc. Flight training included	
GE 581 / 681 SPECIAL TOPICS	3 s.h.
Topical courses offered on an experimental basis. Check department schedule for these offerings	

GE 610	ELEMENTS OF RESEARCH IN GEOGRAPHY & REGIONAL PLANNING	3 s.h.
Elements and techniques of scientific research, as applied to geographic and planning problems, are studied. A research proposal is developed.		
GE 612	QUANTITATIVE TECHNIQUES IN GEOGRAPHY AND PLANNING	3 s.h.
Descriptive and inferential statistical techniques applied to spatial distribution and spatial association of physical and cultural phenomena and testing of spatial theoretical, constructs.		
GE 617	FIELD TECHNIQUES IN GEOGRAPHY AND PLANNING	3 s.h.
Field techniques are evaluated. Field tools and techniques are used in the study of a specific area. Emphasis is upon skill and interpretation of spatial patterns of phenomena.		
GE 620	SPATIAL STRUCTURE OF THE ECONOMY	3 s.h.
The spatial organization of economic systems is studied. Various processes that give rise to these systems and their spatial interdependencies will be explored. Some topical and regional examples of spatial structure will be used as case studies.		
GE 621	AGRICULTURAL GEOGRAPHY	3 s.h.
World agricultural patterns are the core of this course. Specific problems will be studied in view of both the countries involved and world environment.		
GE 622	INDUSTRIAL GEOGRAPHY	3 s.h.
Spatial aspects of industry are considered. Emphasis is placed on the locational patterns of industry particularly as they relate to resource assessment.		
GE 623	REGIONAL DEVELOPMENT	3 s.h.
Theory of and the policy implications of the spatial aspects of development in various regions of underdevelopment in the world.		
GE 630	CULTURAL GEOGRAPHY	3 s.h.
Literature and methods of cultural geography. Topics include population, settlements, human ecology, culture areas, and related features.		
GE 633	SETTLEMENT GEOGRAPHY	3 s.h.
Settlement patterns and processes: origins, diffusion, classification, pioneer, settlement planning, and agricultural colonization.		
GE 665	URBAN PLAN IMPLEMENTATION	3 s.h.
Considers zoning, improvement programs, housing codes, building codes methodology and application of administrative procedures, federal and local urban renewal programs, site selection, program administration. Prerequisite: GE 560.		
GE 666	URBAN PLANNING SEMINAR	3 s.h.
Will vary in content according to students enrolled and their interest. Prerequisite: GE 560.		
GE 670	PROFESSIONAL PROBLEMS IN GEOGRAPHIC EDUCATION	3 s.h.
Classroom problems and discussion centered about new viewpoints in geography Individual reports, group discussion and research included		
GE 680	SEMINAR	3-6 s.h.
Seminars on various topics will be offered occasionally. Topics might be new trends in planning, cartographic theory or spatial aspects of service industries.		

GE 698 INTERNSHIP 3-12 s.h.
Professional learning experience with emphasis on practical application of academic background. Open to students who have completed at least 12 s.h. of graduate work with a minimum of 3.0 GPA. Six s.h. only applicable to degree programs.

GE 699 INDEPENDENT STUDY 1-6 s.h.
Independent research and study under faculty direction. Interested students should apply to director of graduate studies.

GEOSCIENCE

The department offers an MA in geology which requires a minimum of 30 s.h. of approved graduate study including a four to six s.h. committee thesis. A further requirement is a five s.h. (minimum) summer geology field camp course, an experience which should be part of every geologist's background. A summer field course taken as an undergraduate will satisfy this requirement. The summer field course will not satisfy any part of the department's 30 s.h. geology or geoscience requirements, although it may, in some cases, earn graduate credit.

Applicants are expected to have an undergraduate degree in science and to have had math through calculus and a year of both general chemistry and physics. Any significant undergraduate course deficiencies may have to be remedied.

COURSE DESCRIPTIONS

GS 511 SEDIMENTARY PETROLOGY 3 s.h.
Determination and interpretation of grain size parameters; an introduction to clays and clay mineralogy; hand lens and petrographic microscope study of marine phosphorites, carbonates, siliceous sediments, heavy minerals, and sandstones with emphasis on interpreting ancient depositional environments.

GS 512 STRATIGRAPHY 3 s.h.
Study of layered rocks with emphasis on the guiding principles of stratigraphy, the evaluation of unconformities, the principles and problems of correlation, and selected stratigraphy problems.

GS 520 PENNSYLVANIA GEOLOGY 3 s.h.
Diversity and abundance of geologic phenomenon within the state will be used to apply basic geologic concepts of time, rock types and structures and geomorphic processes. Extensive field trips will be an integral part.

GS 522 IGNEOUS & METAMORPHIC PETROLOGY 3 s.h.
Study of rock phyla and their chemical and spatial relationships in the earth. Special attention of the genesis, mineral composition, and classification of rock types. Ecology of igneous, sedimentary, and metamorphic rocks is studied in detail. Prerequisite: Mineralogy.

GS 524 GLACIAL GEOLOGY	3 s.h.
Study of phenomenon of glaciation, including study of glacial movement, glacial deposits, and an investigation of possible causes of glaciation. A working acquaintance with glacial land forms is provided by means of field trips to glaciated region of N.W. Pennsylvania	
GS 526 STRUCTURAL FIELD GEOLOGY	3 s.h.
Includes: techniques of geologic field work such as measuring sections, use of aerial photographs, and a field project involving compilation of a geologic map, cross sections, and geologic report.	
GS 527 GEOMORPHOLOGY	3 s.h.
Landforms and processes and principles that govern both their origin and their subsequent development. Prerequisite: Structural Geology.	
GS 530 PALEONTOLOGY	3 s.h.
A morphological study of major invertebrate life forms of geologic past and their distribution in space and time. Prerequisite: Historical Geology or Zoology.	
GS 535 ECONOMIC GEOLOGY	3 s.h.
Study of earth's metallic and non-metallic mineral resources with regard to processes of formation, methods of extraction (mining and drilling methods), methods of treatment, uses, and economic and environmental factors.	
GS 536 GEOLOGY OF THE NORTHERN ROCKIES	3 s.h.
A field study of the major geologic features and relationships involved in the development of the northern Rocky Mountains. National Park and Monument areas of South Dakota, Wyoming and Montana are included among the areas investigated. Prerequisite: Permission of instructor.	
GS 540 PETROLEUM GEOLOGY	3 s.h.
An introduction to the geology of petroleum, its origin, migration, entrapment and production. The laboratory is designed to provide practical experience in sub-surface mapping techniques and the use and evaluation of geophysical logging devices.	
GS 541 THE SOLAR SYSTEM	3 s.h.
Characteristics and behavior of planets and their satellites, asteroids, meteors, comets, and other phenomena of the solar system. One of the major topics will be to investigate and criticize several of the theories of its origin. It will require some treatment of celestial mechanics but will not require a background of calculus.	
GS 542 THE SIDEREAL UNIVERSE	3 s.h.
Characteristics and classification of the stars, their assemblage in groups and galaxies and their evolution. Techniques of gathering data are examined to gain an understanding of the role of the telescope, spectroscope and photometer in astronomical research. Lab exercises and night observations are a part of the course. Credit will be given only to those for whom the course represents an area of study for which credit has not previously been recorded.	
GS 543 CARBONATE GEOLOGY FLORIDA	3 s.h.
Two weeks of field study in Florida Keys. Will be conducted from base camp in Florida Keys and will consist of both land and water works as the different carbonate environments in the Keys, Florida Bay, and the Atlantic reef tract are studied.	
GS 550 OPERATION OF THE PLANETARIUM	1-2 s.h.
Designed to acquaint student with the operation and use of the Spitz Planetarium. A satisfactory instructional program or show for a public group will demonstrate accomplishment of course objectives. Prerequisites: One year astronomy or equivalent.	

HEALTH AND PHYSICAL EDUCATION

The master of science degree in sport sciences is designed to attract students from the non-teaching professions as well as the teaching profession. It is discipline-oriented with provisions for the student to choose between two major areas of emphasis: professional specialization and sport studies. Options for professional specialization are provided in sport management, sport broadcast journalism, and aquatics administration and facilities management. Options in sport studies are interdisciplinary in nature and tailored to meet individual needs and interests.

Requirements for Admission — To be admitted to the Health and Physical Education Department, the applicant must have completed the requirements for a bachelor's degree from an accredited college or university and fulfill the general requirements for admission to The Graduate School for a master's degree as discussed in this bulletin.

Requirements for Candidacy — Acceptance into The Graduate School permits a student to take course work in the department. If a student wishes to become a degree candidate, he/she must complete the Application to Candidacy and forward this form to the dean of Health Services after having successfully completed six hours of course work in the department.

MASTER OF SCIENCE IN SPORT SCIENCES

Students may choose between a thesis or non-thesis curriculum depending upon individual preference and needs.

I. Thesis Degree Requirements (30 s.h.)

A. Core Courses (20-24 s.h.): HP 600, HP 601, HP 602, HP 603, GR 615, GR 516, HP 850.

B. Electives (six-10 s.h.)

Students may, with the advise and consent of an adviser, select electives from any of the approved graduate level courses.

II. Non-Thesis Degree Requirements (36 s.h.)

A. Core Courses (18 s.h.): HP 600, HP 601, HP 602, HP 603, GR 615, GR 516.

B. Electives (18 s.h.)

Three semester hours from HP 631, HP 632, HP 633, PH 634, HP 635, HP 636, HP 680, or HP 681. Fifteen semester hours from any of the approved graduate level courses with the advise and consent of an adviser.

For description of GR courses, see entry under "GENERAL SERVICE COURSES," page 41.

COURSE DESCRIPTIONS

- HP 600 HISTORY OF PHILOSOPHY OF SPORT 3 s.h.
A functional approach to an understanding of sport and human movement during the course of civilization with emphasis on formation of a constructive philosophical approach to present day problems.
- HP 601 SPORT AND SOCIETY 3 s.h.
Designed to acquaint the student with the reciprocal relationships between sport and physical activity as it affects man's development in the societies and cultures out of which sport emerges.
- HP 602 SPORT PSYCHOLOGY 3 s.h.
Study of the psychological effects and implications of man's participation in sport and physical activity. Emphasis is on personality and motivational dynamics as they relate to sport involvement in human behavior.
- HP 603 PHYSIOLOGICAL BASIS OF SPORT 3 s.h.
An examination of the physiological and psychological factors that influence performance in sport with an emphasis on the analysis of various training techniques.
- HP 631 MOTOR LEARNING 3 s.h.
Psychological principles of learning are applied to the learning of motor skills. Focuses on integration of the learning process, the individuality of the learner, and task and instructional procedures.
- HP 632 ASSESSMENT OF HUMAN PHYSIOLOGICAL FUNCTIONS 3 s.h.
Study of various physical fitness components, their contribution to a person's well being and how to measure and evaluate physical fitness.
- HP 633 KINESIOLOGICAL PRINCIPLES 3 s.h.
Scientific study of human motion with particular attention given to analysis of sports techniques and discussion of kinesiological concepts.
- HP 634 CURRENT LITERATURE IN SPORT 3 s.h.
Review of current literature in physical education and sport. Requires the submission of an article for publication.
- HP 635 SPORT MANAGEMENT 3 s.h.
Theory and practice of human management with applications to sport: formal structure of organizations, goal-setting, organizational personality, group processes and leadership styles.
- HP 636 THE CURRICULUM IN PHYSICAL EDUCATION
AND SPORT 3 s.h.
Study of historical and contemporary factors that influences curriculum development in physical education and sport in various social institutions. Emphasis on theoretical bases for curriculum development.
- HP 641 ADMINISTRTRION OF AQUATICS PROGRAMS 3 s.h.
Examines the organizational procedures, administrative techniques and practices employed in aquatics with special emphasis on adapted, competitive, instructional, recreational, social and water safety programs.
- HP 642 DESIGN AND OPERATION OF AQUATICS FACILITIES 3 s.h.
Elements and principles of planning, design and operation of swimming pools, water-front facilities and related equipment necessary for the aquatic administrator.

HP 680 SEMINAR 3 s.h.

Specific subjects will be considered through readings, reports, discussions and guest presenters. A paper will be required. A specific title will be listed in the schedule of classes. May be repeated.

HP 681 SPECIAL TOPICS 1-3 s.h.

Topics may be considered that are not available through other course offerings. Prerequisite: Permission of Instructor.

HP 690 INTERNSHIP 3-6 s.h.

Prerequisite: Graduate Faculty approval. Prospectus must be presented by the student. Objective is to provide an in-depth experience in an area of interest to the student under guidance of a faculty member and a cooperating supervisor.

HP 699 INDEPENDENT STUDY 1-3 s.h.

Prerequisite: Approval of faculty member, department chairperson, school dean, associate provost. Students may study intensively a subject of their interest under the guidance of a faculty member with the appropriate expertise. Prospectus must be presented by the student.

HP 850 THESIS 3-6 s.h.

HISTORY

The Master of Arts Degree in History is designed to give students both breadth and depth in that academic discipline. As a terminal degree it prepares teachers for the secondary schools and community colleges. Also business and industry are seeking students with social science or humanities majors because of their superior organizational and communication skills.

MASTER OF ARTS IN HISTORY

A minimum of 30 semester hours is required, or 36 semester hours for those electing not to write a thesis. Within these general requirements is a six to nine semester hour research requirement consisting of HI 614 (or a substitution approved by the department) and a combination of seminars and/or thesis hours. The remaining hours are selected from the subject matter courses. Six semester hours may with approval be from related disciplines. Failure to consult with the department prior to registering for courses may delay the completion of a master's degree.

COURSE DESCRIPTIONS

- HI 501 HISTORY OF GREECE 3 s.h.
Will analyze major political, social, economic and cultural developments in ancient Greek civilization from Bronze Age to death of Alexander.
- HI 502 HISTORY OF ROME 3 s.h.
Will trace Roman history from early Republic down to fall of Empire. A study of a civilization from its inception to its collapse.
- HI 503 MEDIEVAL EUROPE I, 400-900 3 s.h.
History of early Medieval Europe, from decline of Rome to beginnings of High Middle Ages; emphasis on political, social, economic, religious, and intellectual developments.
- HI 504 MEDIEVAL EUROPE II, 900-1350 3 s.h.
History of late Medieval Europe, from High Middle Ages to Renaissance period; emphasis on political, social, economic, religious, and intellectual developments.
- HI 505 RENAISSANCE AND REFORMATION 3 s.h.
History of Europe from ca. 1250; rise of commercial city, Kings, and pressures on Christian Church to 1600. Some consideration of technology and voyages.
- HI 506 EARLY MODERN EUROPE 3 s.h.
Greatness of France under Louis XIV; Sweden; Thirty Years' War. Emergence of modern society; French Revolution.
- HI 507 HISTORY OF EUROPE, 1815-1914 3 s.h.
Study of Europe in nineteenth century, with emphasis on the emergence of major thought patterns, Romanticism, Nationalism, Socialism, and Positivism.
- HI 508 20TH CENTURY EUROPE 3 s.h.
Political, economic, and diplomatic trends of Europe since 1900, with major emphasis on causes and results of war, and search for security.
- HI 520 HISTORY OF ENGLAND TO 1688 3 s.h.
Survey of growth of English nation, with emphasis on political, social, and economic developments leading to 17th century conflict between Crown and Parliament.
- HI 521 HISTORY OF ENGLAND, 1688-PRESENT 3 s.h.
Survey of growth of England as a democratic constitutional monarchy. Attention directed to colonial America and English — U.S. relations, as well as to imperial expansion and England's role in 20th century world. Cultural history is included.
- HI 522 FRENCH REVOLUTION AND NAPOLEON 3 s.h.
Development of the Grand Monarchy; brief sketch of Old Regime, concentration on the Revolution and Empire, with emphasis on politics, diplomacy, and economics. Readings and brief papers.
- HI 523 MODERN FRANCE 3 s.h.
Investigation of political, cultural, economic, and social developments since 1815. Discussions and readings.
- HI 524 HISTORY OF GERMANY TO 1848 3 s.h.
Study of evolution of German nation from its prehistoric origins, emphasizing medieval and early modern phases to 1848.

HI 525	HISTORY OF GERMANY, 1849-1970	3 s.h.
Study of development of modern Germany from the Revolution to 1848, including imperial, republican and totalitarian phases, to post-War formation of East and West Germany.		
HI 526	HISTORY OF RUSSIA	3 s h
General survey of Russian history, culture, and institutions. Special consideration given to study of historical forces formative of Revolution of 1917.		
HI 527	HISTORY OF SOVIET RUSSIA	3 s.h.
General survey of contemporary Soviet history, culture, and institutions. Special consideration given to study of communist theory and its place in current Russian historiography.		
HI 531	MODERN MIDDLE EAST	3 s.h.
Survey of changes that have taken place in Middle East and in Islam since eighteenth century and of contemporary problems in that region.		
HI 535	HISTORY OF FAR EAST	3 s.h.
History of China and Japan from ancient times. Buddhism, medieval Japan, Chinese Communism, industrialization. Some consideration of peripheral Asia from 1500.		
HI 540	COLONIAL AMERICA	3 s h
Survey of original thirteen states from their inception as colonies within the British empire to 1763, the eve of independence. Attention given to their political development; economic position within the empire; relations with Indians; and evolution of their social, educational and religious life.		
HI 541	THE AMERICAN REVOLUTION	3 s.h.
Study of history of United States from beginnings of revolutionary crisis in 1763 through adoption of the constitution and the administration of John Adams. Special emphasis is given to the causes and civil war aspects of the revolution, and the constitutional-political development of the new nation.		
HI 542	EARLY UNITED STATES REPUBLIC	3 s.h.
Survey of United States history from 1783 to 1850, with special attention on constitutional, political, economic and social trends.		
HI 543	CIVIL WAR AND RECONSTRUCTION	3 s.h.
Study of failure of American democracy to cope with issues of mid-nineteenth century, followed by political, economic, military, and social developments during War and reconciliation of North and South.		
HI 544	HISTORY OF U.S. 1876-1900	3 s.h.
Stresses reaction of various segments of heterogeneous population of rapid industrialization, urbanization, and corporation of American life and emergence of U.S. as a world power; special attention to formation of new institutions.		
HI 545	HISTORY OF U.S., 1900-1929	3 s.h.
Emphasis on political, social, economic, and diplomatic developments in American history between 1900 and 1929.		
HI 546	RECENT UNITED STATES HISTORY	3 s.h.
Study of political, economic, and cultural changes in American life since 1929. examines roots of social problems facing us today. Some recent foreign policy trends also studied		

- HI 550 HISTORY OF LATIN AMERICA: COLONIAL PERIOD,
1450-1820 3 s.h.
Study of life of people, Indian cultures, conquest by Spaniards and Portuguese, government during Colonial Period, and Wars of Independence.
- HI 551 HISTORY OF LATIN AMERICA: NATIONAL PERIOD,
1820-PRESENT 3 s.h.
Study of history of nations which have emerged since independence: emphasis on economic, political, cultural, and social developments of these nations, as well as relations of these nations to others in the Hemisphere.
- HI 560 HISTORY OF PENNSYLVANIA 3 s.h.
Emphasizes the cultural, economic, political, and social development of our state in its various periods from colonial to today. Special attention given to diversity of Pennsylvania's people, their institutions, and problems.
- HI 561 DIPLOMATIC U.S. HISTORY, 1771-1900 3 s.h.
Traces foreign relations of United States from independence to emergence as a world power. Topics concentrate on themes of commercial relations, political isolation, expansion, and debate over imperialism.
- HI 562 DIPLOMATIC U.S. HISTORY 1900-PRESENT 3 s.h.
Treats primarily our 20th century involvement in world affairs and domestic debate over that involvement. Special emphasis will be placed on role of interest groups and increasing power of Executive Department over Foreign Affairs.
- HI 563 THOUGHT AND CULTURE IN EARLY AMERICA 3 s.h.
Selected topics in early American intellectual and cultural growth, with emphasis on Puritanism, Enlightenment, Cultural Nationalism, and Romantic Movement.
- HI 564 THOUGHT AND CULTURE IN MODERN AMERICA 3 s.h.
Selected treatment of historical development of modern American movements in social and political thought, religion, philosophy, fine arts, and literature.
- HI 565 HISTORY OF THE EARLY AMERICAN WORKING CLASS 3 s.h.
Description and analysis of nature and significance of the U.S. working class in the 18th and 19th centuries. Work settings and communities of workers will be examined as well as unions such as the National Labor Union and Knights of Labor.
- HI 566 HISTORY OF THE MODERN AMERICAN WORKING CLASS 3 s.h.
Description and analysis of nature and significance of the U.S. working class in the 20th century. Work settings and strikes will be examined and analyzed as well as unions such as the United Mine Workers and United Auto Workers, and leaders including Samuel Gompers, John L. Lewis, and George Meany.
- HI 567 ECONOMIC HISTORY OF U.S. 3 s.h.
Historical development of economic institutions in American life since Independence; emphasis on farming, labor, transportation, banking and manufacturing.
- HI 568 U.S. URBAN HISTORY 3 s.h.
A survey of American cities from their beginnings to present emphasizing relationship of urban history of social science theory, and stages and process of city development.
- HI 569 WOMEN IN AMERICA 3 s.h.
Surveys of religious, legal, political, social and popular culture perspectives of womanhood in America from colonial times to the present.

HI 570	HISTORY OF ISLAMIC CIVILIZATION	3 s.h.
An approach to learning about a non-Western culture; Mohammad, Arabs, Muslims as creators to a great civilization from rise of Islam to 1800; emphasis on cultural institutions and their interrelationships within Middle East.		
HI 581	SPECIAL TOPICS IN HISTORY	3 s.h.
Studies of unique interest, such as the American Jew, Great Wars, History of Baseball, Christian perspective, and the Detective Novel in history.		
HI 590	HISTORY OF WOMEN	3 s.h.
Explores religious, legal, political, and mythical dimensions of women in society from ancient to modern times, including non-Western, and European experiences.		
HI 591	FILM AS CULTURAL, INTELLECTUAL, AND SOCIAL HISTORY	3 s.h.
This course deals with the cinema as social, cultural and intellectual history from its origins to the present day.		
SS 599	CONTEMPORARY EUROPE	3 s.h.
A study/tour program in Europe, commonly of three weeks duration each summer. Itinerary differs, but normally includes London, Paris, Florence, Rome, Austria and Switzerland. Program atmosphere is informal and always fun and tiring (lots of walking). Informal lectures on site, guided tours. Academic work includes reading before departure and keeping a daily log.		
HI 600	READINGS IN HISTORY	3-6 s.h.
Direct readings of historical materials, focused on a general topic.		
HI 601	HISTORY SEMINAR	3-6 s.h.
Area research, culminating in a formal paper.		
HI 614	RESEARCH METHODS	3 s.h.
Investigation of library systems, reference works, bibliographies, how to compile a bibliography, organizing research, use of statistics, style systems in printing.		
HI 681	SPECIAL TOPICS FOR GRADUATE STUDIES	3 s.h.
Studies of unique interest, such as the American Jew, Great Wars, Christian perspective, and detective novels in history.		
HI 692	HISTORY INTERNSHIP	1-6 s.h.
With departmental approval, students are attached to local or national government or private agencies doing directive, bibliographical, archival, or museum work. Advising professor meets with intern regularly and determines what papers or reports will be required.		
HI 699	INDEPENDENT STUDY	3 s.h.
Student selects topic for individual study with an instructor.		
HI 850	THESIS	3-6 s.h.

HOME ECONOMICS EDUCATION

The Graduate Program in Home Economics Education leads to a Master of Education Degree. The primary purpose of the program is to further develop professional competencies essential for more responsible leadership roles.

For admission, a student must have completed a baccalaureate degree in home economics with major in home economics education or with a minimum of 35 s.h. of home economics, 19 s.h. in education, including home economics education and student teaching, and a minimum of three s.h. in educational psychology. The degree must be from an approved institution.

Food and Nutrition majors who have a BS degree from an approved institution may be admitted to this program. Graduates with a Food Management and Nutrition background will not be qualified to teach in the public schools nor will this degree help them to meet state certification requirements for teaching Home Economics. However, students can become better qualified for leadership positions in their area of specialization.

Upon admission, students will be assigned an adviser. The student and adviser will outline a tentative program of studies. Any deviation from degree requirements shall have the written approval of the adviser and coordinator of the program.

Prior to the time the student is admitted to degree candidacy, he/she must, in consultation with his/her adviser and coordinator, select the thesis or no-thesis option.

Thesis Option: Candidates will complete 30 s.h. of approved course work plus a two or four s.h. thesis. The selection of and the proposal for research shall be approved by the adviser and other members of his/her Graduate Committee. The research shall be carried on by the candidate under the direction of the research adviser and/or committee members.

Non-Thesis Option: In lieu of thesis, candidate must complete 33 s.h. of approved course work and two extensive research papers. One research paper will be required in HE 676 and the other research paper will be in another home economics course selected by the candidate and approved by the adviser and the Coordinator.

MASTER OF EDUCATION IN HOME ECONOMICS

Students should complete 30 s.h. of work (thesis option) or 33 s.h. of work (no thesis option) from the following areas: Nine s.h. in Professional Development including one course in Humanistic studies selected from FE 514, 611, 612, or 613; one course in Behavioral Studies selected from EP 604, 573, 576, 578, 580 or CE 629, 639 or EX 631; and GR 615 Elements of Research; six s.h. in a Specialization Core including HE 674 and 676; six to nine s.h. selected from courses HE 670, 671, 672 through 699; HE 672 is required of any student who has not completed a course in evaluation; and nine s.h. in a home economics subject matter concentration. Courses for the subject matter concentration may be selected from two or more subject areas of home economics or all courses may be selected from one subject area of home economics.

Courses HE 533, 677, or 697 may be counted for Home Economics Education or subject matter concentration depending on focus of course.

Dual-level courses taken at the undergraduate level cannot be repeated on the graduate level for graduate degree credit.

A maximum of six s.h. may apply toward degree requirements but only one to four s.h. may be applied in any one subject matter area. A maximum of four s.h. may be applied for any tour.

COURSE DESCRIPTIONS

General Courses

General courses may be used to meet the requirements for subject matter or home economics education depending upon the focus.

HE 533 TOUR IN HOME ECONOMICS 1-6 s.h.

Aspects of home economics are studied in relation to the culture of areas toured. Consult brochures, summer sessions catalogs, or chairperson for special offerings.

HE 652 INTERNSHIP 1-6 s.h.
Supervised work experience for majors.

HE 677 SEMINAR IN HOME ECONOMICS 1-3 s.h.
Seminars in selected topics.

HE 697 WORKSHOP IN HOME ECONOMICS 1-6 s.h.
Provides opportunities for experienced educational personnel to concentrate their study on common professional problems.

HE 699 INDEPENDENT STUDY IN HOME ECONOMICS 1-6 s.h.
Student will pursue an independent study in an area of home economics not previously studied and for which the student and adviser identify a need.

Human Development And The Family

HE 517 INFANT DEVELOPMENT 3 s.h.
Study of characteristic developmental changes of human infants from birth to approximately two and one-half years.

HE 526 TECHNIQUES OF PARENT EDUCATION 3 s.h.
Focuses on scope and aims of parent education movement. Methods of helping families become more effective in their parent-child relationships are examined.

HE 527 ADMINISTRATION OF CHILD DEVELOPMENT CENTERS 3 s.h.
Development of competencies needed to administer child care programs. Focuses on program philosophy, curriculum materials, parent and community involvement, staff selection and training, admissions and grouping, proposal writing, budgeting and finance, government regulations, reporting and record-keeping.

HE 620 PROBLEMS IN FAMILY LIVING 3 s.h.
Emphasis is placed on solving problems created by social change. New knowledge from science, medicine, sociology, economics, art and psychology is utilized to improve family living. Problems concerned with food, clothing, shelter, management, and family relationships are investigated.

**HE 621 FIELD WORK IN FAMILY LIFE OR
IN HUMAN DEVELOPMENT** 3 s.h.

Designed to study individual and family interaction. Methods of working with various types of families through an analysis of research, scientific literature, and community programs are studied. Advanced graduate students plan and participate in laboratory-type work with individual families. (Permission of instructor for non-majors.)

Education

HE 670 HOME ECONOMICS IN AMERICAN EDUCATION 3 s.h.

Present status of home economics is reviewed in terms of the profession's history and philosophy. Role and contribution of home economics at the elementary, secondary, post-secondary levels are reviewed and evaluated. Trends and issues are investigated

HE 671 HOME ECONOMICS IN HIGHER EDUCATION 3 s.h.

Contemporary programs at college level are evaluated in terms of major issues, trends, and problems in higher education. Emphasis is placed on problems of curriculum development, effective teaching, guidance and evaluation in professional home economics.

HE 672 EVALUATION IN HOME ECONOMICS 3 s.h.

Evaluative methods and techniques designed to measure a comprehensive range of home economics educational objectives are studied. Special attention to use and construction of teacher-made tests and evaluative devices.

**HE 673 SUPERVISION AND ADMINISTRATION IN
HOME ECONOMICS** 3 s.h.

Deals with principles, methods, and techniques of supervision in home economics. Special attention is given to basic concepts in supervision such as human relations, communication process, decision-making and leadership strategies.

**HE 674 ADVANCED METHODS OF TEACHING
HOME ECONOMICS** 3 s.h.

Various models of classroom teaching are studied with emphasis on procedure, equipment, and materials used in the improvement of instruction. Implications of current trends and issues relevant to classroom education are discussed.

HE 675 SPECIAL PROBLEMS IN HOME ECONOMICS 3 s.h.

Specific problems with curriculum, teaching, learning experiences and evaluation are stressed. Each student will research a special problem or area of interest.

HE 676 CURRICULUM DEVELOPMENT IN HOME ECONOMICS 3 s.h.

Special attention is focused on realistic curriculum decisions and using innovative procedures.

HE 690 RESEARCH IN HOME ECONOMICS 3 s.h.

Methodology is introduced and studied in terms of research problems. Reports by home economics, behavioral science, and education researchers are analyzed and evaluated. Designed to assist the student in defining a thesis. Student should complete HE 676 before scheduling this course.

LABOR RELATIONS

The Master of Arts in Labor Relations is a multidisciplinary graduate degree program designed to prepare professional practitioners in the field of labor relations in public and private management, unions, government agencies, and mutual and service organizations. The 42 s.h. program consists of a required core of 27 s.h. and elective course offerings totaling 15 s.h.

In consultation with the adviser, each student will individually build the elective sequence of the program of study by choosing 15 elective s.h. from among Labor Relations courses and courses approved by the adviser offered by other departments.

Students wishing to integrate theory and practice in the field are strongly encouraged to elect an internship. Certain students with exceptional background in labor relations work experience or previous course work may qualify for exemption from some courses. As part of their professional growth, students may also participate in the research and training activities of the Pennsylvania Center for the Study of Labor Relations operated by the School of Continuing and Non-Resident Education.

COURSE REQUIREMENTS FOR THE M.A. DEGREE

- I. Required Core 27 s.h. in LR 610, LR 611, LR 612, LR 613, LR 615, LR 619, LR 625, LR 641, and EC 530.
- II. Elective Area: 15 s.h. chosen from other elective courses in Labor Relations, or from related departments with the approval of student's adviser.

LABOR RELATIONS

LR 526 CASE STUDIES IN LABOR-MANAGEMENT RELATIONS 3 s.h.

Study of labor management relationships in a variety of organizational setting through utilization of the case study technique.

LR 557/ LABOR AND BUSINESS IN POLITICS

3 s.h.

PS 557
Analysis of labor and business involvement in politics with special attention to the involvement of labor and business in Pennsylvania and national politics.

LR 581 SPECIAL TOPICS IN LABOR RELATIONS

3 s.h.

According to student demand, special graduate courses on selected topics.

LR 610 EMPLOYEE RIGHTS UNDER LAW

3 s.h.

A review of the legislated rights and benefits of employees in terms of their impact on labor and management in the collective bargaining process.

LR 611 DEVELOPMENT AND THEORIES OF THE LABOR MOVEMENT

3 s.h.

Institutional and theoretical overview of the development of the American labor movement with special emphasis on major labor movement theorists. (Alternative: HI 566).

- LR 612 LABOR RELATIONS PRACTICE AND ADMINISTRATION 3 s.h.
Practice and administration of labor relations focusing on the operation and internal relationships of the individuals involved and upon the application of labor relations skills.
- LR 613 FUNDAMENTALS OF AMERICAN LABOR RELATIONS 3 s.h.
Introduction to the terms, theories, and practice of Labor Relations in the United States.
- LR 615 DISPUTE SETTLEMENT 3 s.h.
Review of the theories underlying and legislation supporting labor arbitration, emphasizing development of advocacy skills through simulations of actual disputes. Prerequisite: LR 613.
- LR 618 SEMINAR: CURRENT ISSUES IN LABOR RELATIONS 3 s.h.
Detailed examination of current professional issues in the field.
- LR 619 RESEARCH METHODS IN LABOR RELATIONS 3 s.h.
Nature of and major outlets for contemporary research in labor relations as well as the historical development of research in the field. Elements of statistics and quantitative interpretations are introduced.
- LR 620 INTERNSHIP 3 s.h.
Field experience in labor relations. An internship log and term paper are required.
- LR 621 LABOR RELATIONS IN THE PUBLIC SECTOR 3 s.h.
Developments in federal, state, and local labor relations including: presidential orders and federal agencies; survey of the states; Pennsylvania Acts 111 and 195; effects of public sector fact-finding and arbitration.
- LR 622 DISCRIMINATION IN EMPLOYMENT 3 s.h.
Investigation of employment discrimination in the United States with special attention to the roles of government, industry, and labor and the impact of federal intervention since 1960.
- LR 623 STRUCTURE AND GOVERNMENT OF UNIONS 3 s.h.
The union examined as an institution, with a focus on its organizational structure; administration; relationships with the employer, its members, and its state and national affiliates. Particular unions will be chosen for case study. Prerequisites: LR 613.
- LR 624 COMPARATIVE LABOR RELATIONS 3 s.h.
International dimensions of labor relations are explored by examining the labor-management relations in a foreign country or region. Prerequisites: LR 613.
- LR 625 PROCESSES OF COLLECTIVE BARGAINING 3 s.h.
Survey of current laws, principles and procedures in use in modern collective bargaining; and evolving trends.
- LR 631 HUMAN RESOURCE MANAGEMENT IN THE PUBLIC SECTOR 3 s.h.
Human resource management systems with a special examination of public sector organizations.
- LR 632 COMPENSATION AND BENEFIT ADMINISTRATION 3 s.h.
Study of the field of compensation management and benefits administration in the public and private sectors. Special emphasis on the input of collective bargaining in the development and administration of compensation and benefit systems and the necessary skills to function as a professional in the field.

LR 640	NEGOTIATIONS	3 s.h.
A course on negotiations theory and practice which applies negotiations strategies from a variety of fields in hands-on simulations of collective bargaining in labor relations. Prerequisites: LR 613		
LR 641	CONTRACT ADMINISTRATION	3 s h
Analysis of the practices and responsibilities of labor and management in the mutual performance of a collective bargaining agreement, with primary attention given to the process of grievance resolution. Prerequisites: LR 613		
LR 650	ALTERNATIVE WORK STYLES	3 s.h.
Review of efforts to increase worker participation in certain levels of managerial decision making in private and public production or service enterprise, through shares in ownership, through seats on boards, through shop level team work, etc. Results will be considered from the point of view of productivity, of worker satisfaction, of social utility. Prerequisite: LR 613.		
LR 681	SPECIAL TOPIC IN LABOR RELATIONS	3 s.h.
According to student demand, special graduate courses on selected topics.		
LR 699	INDEPENDENT STUDY	3 s.h.
Students will select one or more topics of critical importance in labor relations and will meet with faculty for independent reading, analysis, and evaluation. Prerequisites: Approval of department chairperson, dean and provost.		
LR 850	THESIS	3-6 s.h.
For students writing the thesis, LR 850 should be scheduled for the semester in which the student plans to complete his/her work. The thesis may be a non-committee thesis (1-3 s.h.), with one faculty member serving as the student's adviser, or a committee thesis (1-6 s.h.).		

MATHEMATICS

The Mathematics Department offers the Master of Education degree with major in mathematics and the Master of Science degree.

The Master of Education program is specifically designed for secondary mathematics teachers. Its purpose is to provide an opportunity for students to increase their knowledge of mathematics and to become aware of research and innovations in mathematics education.

The course requirements for the Master of Science program are quite flexible and include an option of six s.h. in an area related to mathematics. This flexibility allows the program to serve many purposes, including appropriate choices for secondary mathematics teachers, for persons preparing for employment in areas of applied mathematics, and for students who will pursue further graduate work in mathematics.

Each graduate student will be assigned an academic adviser to aid in selecting the most appropriate program. Approval of the adviser is required for all courses leading to the master's degree.

MASTER OF EDUCATION IN MATHEMATICS

A minimum of 30 s.h. is required for the Master of Education degree. Courses taken must satisfy the following requirements.

1. One course (three s.h.) from FE 514, 611, 612, 613
2. One course (three s.h.) from EP 604, EP 573, EP 576, EP 578, EP 580, CE 629, CE 639, EX 631
3. GR 615, Elements of Research (three s.h.)
4. Six s.h. from MA 651, MA 652, MA 650, MA 654. With special permission from the adviser, EM 651 and EM 652 are acceptable for this requirement.
5. A minimum of 15 s.h. of mathematics content courses. All three s.h. graduate mathematics courses are considered content courses with the single exception of MA 600, MA 521 and MA 576 are required unless comparable courses have been completed at the undergraduate level.

For descriptions of FE courses, see section on FOUNDATIONS OF EDUCATION; for EP courses, see EDUCATIONAL PSYCHOLOGY; for CE course, COUNSELOR EDUCATION; for EX course, SPECIAL EDUCATION; for EM courses, MATHEMATICS FOR ELEMENTARY SCHOOL TEACHER.

For description of GR courses, see entry under "GENERAL SERVICE COURSES," page 41.

MASTER OF SCIENCE IN MATHEMATICS

Every candidate for the Master of Science degree in Mathematics must complete at least 30 s.h. of graduate work. These courses must satisfy the following criteria:

1. The course MA 600, Methods of Research in Mathematics is required of all students.
2. The two courses MA 576, Abstract Algebra I and MA 521, Advanced Calculus I, are required unless comparable courses have been completed at the undergraduate level.
3. The student may select 27 s.h. of content courses in mathematics or 21 s.h. of content courses and six s.h. in a related area. The department accepts the optional thesis as a content course. The student must have the adviser's approval of the courses elected in a related area.

COURSE DESCRIPTIONS

MA 521-522 ADVANCED CALCULUS I, II

3, 3 s.h.

A rigorous investigation of continuity; differentiation, and integration on real p-dimensional space. The Riemann-Stieltjes integral, infinite series, and infinite series of functions are also studied. Prerequisite: Permission of the adviser.

MA 523-524 COMPLEX VARIABLES I, II	3, 3 s.h.
Introduces fundamental concepts of complex analysis and includes following topics: complex numbers, functions, sequences, analytic functions, elementary functions, complex integration, power series, Laurent series, singular points, calculus of residues, infinite product and partial fraction expansion, conformal mapping, and analytic continuation. Prerequisite: Permission of the adviser.	
MA 527 TOPOLOGY	3 s.h.
Basic topological concepts, including some topological invariants. Relationships between topology and other disciplines of mathematics are discussed. Prerequisites: Differential & Integral Calculus.	
MA 545 PROGRAMMING MODELS IN OPERATIONS RESEARCH	3 s.h.
Prerequisites: two semesters of calculus Development of deterministic mathematical models for managerial and social sciences with relevant computational techniques Three hours lecture per week.	
MA 546 PROBABILISTIC MODELS IN OPERATIONS RESEARCH	3 s.h.
Prerequisites: two semesters of calculus, MA 563 or equivalent. Development of probabilistic mathematical models for managerial and social sciences with relevant computational techniques. Three hours lecture per week.	
MA 553 THEORY OF NUMBERS	3 s.h.
Elementary properties of divisibility, congruences, Chinese remainder theories, primitive roots and indices, quadratic reciprocity, Diophantine equations, and number theoretic functions. Prerequisites: Differential and Integral Calculus.	
MA 563 MATHEMATICAL STATISTICS I	3 s.h.
Probability theory necessary for an understanding of mathematical statistics is developed, applications of the theory are given, with emphasis on binomial, Poisson, and normal distributions. Distributions of sums and a central limit theorem are developed. Three hours lecture per week. Prerequisite: Differential & Integral Calculus.	
MA 564 MATHEMATICAL STATISTICS II	3 s.h.
Multivariate distributions, properties of the moment generating function, change of variable technique, Chi-square distribution, estimation, confidence intervals, testing hypotheses, contingency tables, goodness of fit. Many practical applications. Use of calculating machines were appropriate. Three hours lecture per week. Prerequisite: MA 563.	
MA 565 TOPICS IN STATISTICS	3 s.h.
Correlation and regression from applied and theoretical points of view, bivariate normal distribution, small sample theory Student's t and F distributions, analysis of variance, nonparametric methods. Many practical applications. Use of calculating machines or computers where appropriate. Three hours lecture per week. Prerequisite: MA 564.	
MA 571 LINEAR ALBEGRA	3 s.h.
Theory of vector spaces and linear transformations and applications to linear equations, determinants, and characteristic roots are studied.	
MA 576-	
577 ABSTRACT ALGEBRA I, II	3, 3 s.h.
Basic algebraic structures such as groups, rings, integral domains, and fields. Designed to develop the student's ability to construct formal proofs and to work within an abstract axiomatic system. Polynomial rings, factorization and field extension leading up to Galois Theory.	

MA 581-

583 TOPIC SEMINARS IN MATHEMATICS

3 s.h.

Special topics which go beyond the scope of regularly offered courses. Offered on basis of student interest and available staff. The student may take more than one Topic Seminar with the written approval of the adviser. Prerequisite: Consent of the instructor.

MA 600 METHODS OF RESEARCH IN MATHEMATICS

3 s.h.

Review of literature and recent research in mathematics. Emphasis is on the use of periodicals and other library resources. Each student will complete an independent study of an approved topic, including a written report.

MA 625-

626 REAL VARIABLES I, II

3, 3 s.h.

Classical theory of functions of a real variable and of measure and integration theory. Prerequisite: MA 522 or its equivalent.

MA 631 FOUNDATIONS OF MATHEMATICS I

3 s.h.

Designed to acquaint the student with logical techniques used in proof and set theory. Topics include symbolic logic, rules and inference, validity of arguments, algebra of sets, cardinal numbers, the well-ordering property, and the Axiom of Choice.

MA 632 FOUNDATIONS OF MATHEMATICS II

3 s.h.

Properties of axiom systems including consistency, independence, and completeness for propositional calculus and first-order predicate calculus. Prerequisites: MA 631 and at least six s.h. of graduate level mathematics.

MA 641 DIFFERENTIAL EQUATIONS

3 s.h.

Special solvable non-linear equations with solutions based on operator techniques, the Laplace transform, or infinite series. Numerous applications to physical problems. Three hours lecture per week. Prerequisite: Differential & Integral Calculus.

MA 650 HISTORY OF MATHEMATICS

3 s.h.

Men and ideas that have shaped the course of events in mathematics are examined. Major attention is given to developing activities for secondary school mathematics classroom which incorporate the historical viewpoint.

MA 651 SEMINAR IN TEACHING JUNIOR HIGH SCHOOL

MATHEMATICS

3 s.h.

Explores problems of teaching mathematics at junior high school level. Emphasis on a discovery, laboratory-oriented approach to teaching. Prerequisite: Permission of the instructor.

MA 652 SEMINAR IN TEACHING SENIOR HIGH SCHOOL

MATHEMATICS

3 s.h.

National and international forces shaping today's mathematics programs, curriculum development and research, art of generating interest, formation of concepts, proof, problem solving, generalization, and evaluation. Special attention to teaching of topics from algebra and calculus, and to modern approach of teaching geometry and trigonometry. Prerequisite: Permission of the instructor.

MA 654 CURRICULUM & SUPERVISION IN MATHEMATICS

3 s.h.

Basic principles underlying an effective mathematics curriculum are examined from both a theoretical and an experimental viewpoint. Role of supervisor as a source of stimulation, leadership, and expertise in teaching of mathematics is investigated.

MA 655 PROJECTIVE GEOMETRY 3 s.h.

An introduction to Klein's formulation of geometry of the invariant theory of a given set under a given group of transformations and develops projective spaces of 1 and 2 dimensions and conics and quadratic forms. Prerequisites: Undergraduate courses in linear algebra and geometry.

MA 656 AFFINE GEOMETRY 3 s.h.

Examines affine and metric geometries based on an axiom system stated in terms of linear algebra, which leads to important theorems of classical geometry. Prerequisites: Undergraduate courses in linear and abstract algebra

MA 677 TOPICS IN ABSTRACT ALGEBRA 3 s.h.

Topics in group theory, ring theory, and study of modules. Prerequisite: MA 577.

MA 690 INDEPENDENT STUDY IN MATHEMATICS 3 s.h.

Under the guidance of faculty member, a student may study some area of mathematics not in the regular courses

MATHEMATICS FOR ELEMENTARY SCHOOL TEACHERS

The program leading to a Master of Education degree in Mathematics for Elementary School Teachers is designed to give the elementary and middle school teacher both depth and breadth in the mathematical concepts essential to a contemporary school mathematics program. An integral part of the program will be to familiarize the students with recent developments in curriculum, instruction, and implementation of contemporary mathematics programs in the elementary schools. Upon completion of the program the student will be prepared to serve as a coordinator, resource person or in other leadership roles in an elementary or middle school mathematics program. For teachers in the public schools, the program meets the credit requirements for instructional Level II certification.

Each person admitted to the program will be assigned an adviser who will assist the student in selection of the course work best suited to the student's background and professional aspirations.

A minimum of 30 s.h. is required for the Master of Education in Mathematics for Elementary School Teachers Degree. Courses taken must satisfy the following requirements:

I. Professional Development Area — nine s.h. as listed below:

A. Humanistic Studies — three s.h. should be selected from the course listings for the Foundations of Education department.

B. Behavioral Studies — three s.h. should be selected from a list of approved courses (consult adviser). Course descriptions are under the appropriate departmental listings for the Educational Psychology, Counselor Education, Special Education, and Elementary Education departments.

C. Educational Research — three s.h.
GR 615 Elements of Research.

II. Specialization Core — six s.h. required from EM 650, 651, 652.

III. Subject Matter Concentration Area — 11-15 s.h.

A minimum of 15 s.h. will usually be selected from the courses listed if the student elects not to write a thesis. If the student elects to write a thesis, 11 semester hours will be taken in the Subject Matter Concentration Area. Courses other than those with "EM" department label (such as MA 654) may be taken to meet the Subject Matter Concentration Area requirements with the adviser's consent. MA courses are listed in the MATHEMATICS section.

IV. Thesis (optional) — two to four s.h.

A student may elect to write a thesis for two to four s.h. after consultation with his/her adviser. This decision must be made at the time the student is admitted to candidacy for the degree.

Thesis credits will be determined by the adviser in consultation with the student. No more than three s.h. may be received for a noncommittee thesis.

For description of GR courses, see entry under "GENERAL SERVICE COURSES," page 41.

INTERNSHIP PROGRAM AS PART OF THE MASTER OF EDUCATION IN MATHEMATICS FOR ELEMENTARY SCHOOL TEACHERS DEGREE PROGRAM

IUP in cooperation with selected school systems offer a graduate level Internship Program as part of the Master of Education in Mathematics for Elementary School Teachers degree. This program is intended to provide a limited number of well qualified graduate students with teaching experiences in a K-8 mathematics program while completing the requirements for the Master of Education in Mathematics for Elementary School Teachers degree.

The professional work experiences of the interns will earn graduate credit and therefore will be subject to review and evaluation by a faculty member from the University, as well as being under the supervision of designated public school personnel.

Information regarding the Internship Program may be obtained from: Director of Graduate Studies in Mathematics for Elementary School Teachers, Mathematics Department, IUP, Indiana, PA 15705.

COURSE DESCRIPTIONS

EM 517 INTRODUCTION TO PROBABILITY AND STRATEGIES 3 s.h.

Introduces students to elementary concepts of probability which will enable them to analyze data, make predictions and determine what concepts may be used with children. Prerequisite: MA 152 or equivalent.

EM 520 PRE-CALCULUS MATHEMATICS I 3 s.h.

Examines the function concept as applied to elementary real number functions and graphing techniques for these functions. Topics include real number functions such as absolute value, step, linear quadratic and other polynomial functions, trigonometric and other periodic functions, exponential logarithmic functions and all other inverse functions. Students will examine curricular materials that develop function concepts in grades K-8. Prerequisite: MA 152 or equivalent.

EM 550 MATHEMATICS FOR EARLY CHILDHOOD 3 s.h.

Study of a child-centered, activity-oriented, mathematics program for early childhood education. Students gather and construct manipulative materials and become familiar with commercially produced materials. Prenumber activities, number activities, numeration, operations on whole numbers, fractional numbers, geometry, measurement, problem solving. Prerequisite: MA 151 or equivalent.

EM 556 PRINCIPLES OF GEOMETRY I 3 s.h.

Students become acquainted with an informal, intuitive approach to geometry. Activities and materials for teaching geometrical concepts to children are an integral part of the course. Prerequisite: MA 152 or equivalent.

EM 557 INTRODUCTION TO NUMBER THEORY 3 s.h.

Introduction to topics in elementary number theory including: basic operations and properties of integers; divisibility properties of integers; modular arithmetic and congruences; diophantine equations; interesting relationships among numbers; applications of number theory in elementary school mathematics. Prerequisite: MA 152 or equivalent.

EM 558 INTRODUCTION TO LOGIC AND LOGICAL GAMES 3 s.h.

Introduction to some basic ideas, terminology and notation of logic. Topics considered: symbolic logic, with special emphasis on algebra of propositions; applications of Boolean Algebra such as algebra of sets and switching circuits; and introduction to quantification theory and its value in determining validity of mathematical arguments, inference schemes and logical puzzles and a consideration of other topics in logic suitable for a K-8 mathematics curriculum. Prerequisite: MA 152 or equivalent.

EM 559 COMPUTER RELATED TOPICS IN THE ELEMENTARY AND MIDDLE SCHOOL 3 s.h.

This course is intended to provide teachers with the concepts and techniques necessary to teach computer related topics in children in the elementary and middle schools. Participants will work with elementary school children throughout the semester. Prerequisites: MA 152 or equivalent (or consent of instructor).

EM 571 BASIC CONCEPTS OF ALGEBRA 3 s.h.

Concepts of basic algebraic structures such as group, ring integral domain, field and vector space are studied within the context of the mathematical maturity of the student. Other topics include relations and functions, polynomials and polynomial equations, systems equations and inequalities. Consideration given to development of these concepts in the mathematics curriculum. Prerequisite: MA 152 or equivalent.

EM 601 BASIC CONCEPTS IN MATHEMATICS I 3 s.h.

For students who have not taken MA 151 or an equivalent course as undergraduates. Will give a good understanding or development and structure of systems of numeration up to and including the set of real numbers.

EM 602 BASIC CONCEPTS IN MATHEMATICS II 3 s.h.

For students who as undergraduates have not taken MA 152 or an equivalent course. Will give a basic understanding of algebraic properties of different mathematical systems and help the student to understand how properties of systems are interrelated. Prerequisite: EM 601 or equivalent.

EM 603 TEACHING THE METRIC SYSTEM

3 s.h.

A course designed for elementary and/or middle school teachers that will thoroughly acquaint them with the SI Metric System as the general public will use it and provide opportunity to investigate and create activities suitable for their students. Secondary teachers unfamiliar with the SI System or with methods of teaching the system will find this course very beneficial also.

**EM 650 CURRICULUM AND INSTRUCTION IN
ELEMENTARY SCHOOL MATHEMATICS**

3 s.h.

Gives the experienced elementary teacher access to latest literature, equipment, materials and procedures. Topics include: experimental programs that have made an impact on teaching and learning; criteria for selection of suitable new texts for a school district; ways of implementing a contemporary program; investigation, discussion, demonstration and evaluation of manipulative aids.

**EM 651 THE LABORATORY APPROACH TO
TEACHING MATHEMATICS**

3 s.h.

Development of lab approach to the teaching of mathematics. Includes both an intensive study of techniques, organization, and supervision of laboratory activities and the practical design construction and implementation of materials.

EM 652 DIAGNOSIS AND REMEDIAL TEACHING OF MATHEMATICS

3 s.h.

Examines why some children have difficulty in learning mathematical concepts and presents tools and techniques for diagnosing and remediating common difficulties in elementary and middle school mathematics. Course valuable for those teaching in elementary, middle school or remedial programs.

EM 681 SPECIAL TOPICS

3 s.h.

Special topics which go beyond the scope of regular offered courses. Offered on basis of student interest and available staff. The student may take more than one Special Topics offering with the written approval of the adviser. Prerequisite: Consent of the instructor.

EM 699 ELEMENTARY MATH — INDEPENDENT STUDY

1-6 s.h.

Under the guidance of a faculty member, a student may study some area of mathematics or mathematics education not covered in the regular courses.

MUSIC AND MUSIC EDUCATION

The graduate program in music provides the student with opportunities to improve his/her skills as teacher, performer or scholar beyond the bachelor's degree. Upon acceptance by The Graduate School, each student consults the Director of Graduate Studies in Music who will help to plan the sequence of courses, and who will be responsible for the formation of the thesis or recital committee.

Admission: Undergraduate degree with major in music or its demonstrated equivalent is required. Placement examinations will be required in theory, music history, piano proficiency and principal performing medium. The adviser will use the results of these examinations to determine areas of deficiency and to prescribe specific electives. Upon completion of course work, each student will schedule a comprehensive oral examination with a faculty committee.

MASTER OF ARTS IN MUSIC

Core Courses: MU 600, MU 516 (MU 618 for Music Education) and MU 632 nine s.h.

Major Concentration:

- I. Music History and Literature — Courses (four) are selected from the following:
MU 503, MU 504, MU 505, MU 507, MU 508, MU 510, MU 618 12 s.h.

II. Music Theory and Composition — Courses (four) are selected from the following:
MU 511, MU 512, MU 513, MU 514, MU 515, MU 618 11-12 s.h.

III. Music Performance — Applied music courses in the major performance area
AM 601-771 12 s.h.

IV. Music Education — MU 619 and MU 620 are required; with recital or thesis, two or three additional courses are selected; without recital or thesis, up to four additional courses are selected from the following:
MU 501, MU 502, MU 628, MU 629, MU 631, MU 633, MU 634, MU 635, MU 636, MU 537, MU 540-550 10-14 s.h.

Elective Courses:

If major concentration is I, II, or III, courses totaling six s.h. are selected according to students' needs and interests.

If major concentration is IV, select a music theory or history course (3 s.h.) and applied music study in students' major or minor performance area (4 s.h.)

Thesis or Recital:

- | | | |
|--------|---------------------------------------------------------------------------------------|----------|
| GR 850 | Thesis — If major concentration is I or II
(Optional if major concentration is IV) | 3-4 s.h. |
| | | 2-4 s.h. |
| GR 851 | Recital — If major concentration is III
(Optional if major concentration is IV) | 4 s.h. |
| | | 2-4 s.h. |

For description of GR courses, see entry under "GENERAL SERVICE COURSES," page 41.

MASTER OF EDUCATION IN MUSIC EDUCATION**I. Professional Development Area (nine s.h.)**

- A. Humanistic Studies (three s.h.) — One of the following: FE 611, FE 612, FE 613, or FE 514
- B. Behavioral Studies (three s.h.) — One of the following: EP 604, EP 573, EP 576, EP 578, EP 580, CE 629, CE 639, or EX 631.
- C. Research (three s.h.)
GR 615 Elements of Research

II. Specialization Core (six s.h.) — Two of the following:

FE 515	Decision Making Curriculum Development	3 s.h.
CM 600	Seminar in Learning Resources	3 s.h.
	Departmental Methods Course(s)	3-6 s.h.
	Departmental Curriculum Course(s)	3-6 s.h.

III. Subject Area and/or Electives and/or Thesis (15 s.h.)**A. Required Courses — Music Education Core (nine s.h.)**

MU 618	Comprehensive Musicianship	3 s.h.
MU 619	Methods of Comprehensive Musicianship	3 s.h.
MU 620	Foundations of Music Education	3 s.h.

B. Elective Courses (six s.h. selected from the following list)

MU 501	Advanced Choral Conducting	2 s.h.
MU 502	Advanced Instrumental Conducting	2 s.h.
MU 628	Contemporary International Approaches to Elementary Music Education	2 s.h.
MU 629	Advanced String Pedagogy	2 s.h.
MU 631	Administrative Problems in Music Education	2 s.h.
MU 633	Comparative Choral Methods	2 s.h.
MU 634	Practicum in Instrumental Music	2 s.h.
MU 635	Psychology of Music Education	2 s.h.
MU 636	Advanced Technology of Music Teaching	2 s.h.
MU 537	Techniques of the Marching Band	2 s.h.
MU 540-550	Summer Music Workshop (content varies)	1-3 s.h.
AM 601-771	Applied Music	1-4 s.h.
	Other approved elective	

C. Thesis or Recital (optional) 2-4 s.h.

For description of FE courses, see section on FOUNDATIONS OF EDUCATION; for EP courses, EDUCATIONAL PSYCHOLOGY; for CE courses, COUNSELOR EDUCATION; for EX course, SPECIAL EDUCATION; for CM course, COMMUNICATIONS MEDIA.

For description of GR courses, see entry under "GENERAL SERVICE COURSES," page 41.

COURSE DESCRIPTIONS

MU 501	ADVANCED CHORAL CONDUCTING	2 s.h.
Material will include large choral works with and without accompaniment. Student will be expected to develop skills in reading score.		
MU 502	ADVANCED INSTRUMENTAL CONDUCTING	2 s.h.
An intensive study of large instrumental works. Skill development of each individual will be stressed.		
MU 503	MUSIC OF THE BAROQUE ERA	3 s.h.
A survey of music from about 1600 to 1750.		
MU 504	MUSIC OF THE CLASSICAL ERA	3 s.h.
A survey of music from about 1725 to about 1827.		
MU 505	MUSIC OF THE ROMANTIC ERA	3 s.h.
A survey of music from about 1800 to 1910.		
MU 506	VOICE PEDAGOGY	3 s.h.
Techniques in teaching voice.		
MU 507	MUSIC OF THE 20TH CENTURY	3 s.h.
A survey of the principal stylistic trends in music from 1900 to the present.		
MU 508	MUSIC OF THE 16TH CENTURY	3 s.h.
A survey of music from about 1500 to about 1600.		
MU 509	PIANO PEDAGOGY	3 s.h.
Survey of current and significant past developments in teaching of piano, both privately and in small and large classes. The various piano methods are analyzed, compared, criticized, and adapted to each individual's use.		
MU 510	SEMINAR IN MUSIC	3 s.h.
Subject matter will change each semester. Students will make presentations and write an extensive research paper. Seminar may be repeated provided subject matter is not (with departmental approval). An in-depth study can be made of narrowly defined areas, such as life and/or works of a specific composer or group of composers.		
MU 511	COMPOSITION	3 s.h.
Composition of Music in various song forms through the rondos and the larger sonata allegro form. Careful analysis of similar forms of major composers. Instruction will be highly individualized and will depend considerably on personal interest of the student.		
MU 512	ADVANCED ORCHESTRATION	3 s.h.
Consideration to problems of scoring for full symphony orchestra, string orchestra and chamber orchestra. Students will produce a full score and orchestra parts so that orchestration may be tested by actual playing by the University Symphony		
MU 513	ADVANCED BAND SCORING	3 s.h.
Problems of scoring for modern concert band. In addition, problems of scoring for brass band, woodwind choir, and percussion ensemble will be considered		
MU 514	ADVANCED CHORAL ARRANGING	2 s.h.
Four-part writing for chorus. Five, six, seven, and eight-part writing will comprise large part of the course. Special consideration will be given to problem of writing for men's and women's voices.		

MU 515	CANON, DOUBLE COUNTERPOINT, AND FUGUE	3 s.h.
Application of contrapuntal techniques, through analysis and creative writing. Included will be study and writing of two- and three-voice canons; two- and three-part inventions; and two-, three-, and four-voice fugues.		
MU 516	ANALYTICAL TECHNIQUES	3 s.h.
Study of representative compositions of various periods, with emphasis on formal harmonic and stylistic analysis. Student will develop basic analytical techniques necessary for analysis of music of any period.		
MU 535	MUSIC FOR THE EXCEPTIONAL STUDENT	3 s.h.
Develops music education skills, techniques and materials for the mentally, physically or neurologically handicapped student, and the gifted student. Designed for majors in music education, special education, or elementary education.		
MU 537	TECHNIQUES OF THE MARCHING BAND	2 s.h.
Theory and practical application of fundamentals of precision drill. Also, this course deals with building "half-time shows," materials and instrumentation of the marching band.		
MU 540-550	SUMMER MUSIC WORKSHOP	1-3 s.h.
Concentration in special interest areas. Content varies.		
MU 551	ITALIAN/ENGLISH DICTION	2 s.h.
MU 553	FRENCH DICTION	2 s.h.
MU 554	GERMAN DICTION	2 s.h.
MU 575	MUSIC ENSEMBLES	1 s.h.
Various music department ensembles are open to qualified graduate students.		
MU 600	BIBLIOGRAPHY OF MUSIC	3 s.h.
Introduces graduate students to various types of music, music literature and bibliographical tools which exist and which may be used in research in music. As a project, each student will prepare an extensive annotated bibliography of a music subject within his special interest.		
MU 618	COMPREHENSIVE MUSICIANSHP	3 s.h.
Combines undergraduate concepts and skills in music theory, literature, and performance at an advanced level using an integrated approach. Prepares student to function in a variety of musical roles.		
MU 619	METHODS FOR COMPREHENSIVE MUSICIANSHP	3 s.h.
Includes learning strategies, experiences, and activities appropriate for introducing Comprehensive Musicianship at elementary and secondary school levels.		
MU 620	FOUNDATIONS OF MUSIC EDUCATION	3 s.h.
Study of historical, philosophical and social foundations of music education including current trends in educational thought and their implications for school music program.		
MU 622	COMPOSITION II	3 s.h.
MU 623	COMPOSITION III	3 s.h.

MU 628	CONTEMPORARY INTERNATIONAL APPROACHES TO ELEMENTARY EDUCATION	2 s.h.
	An introduction to new developments in elementary music education practices based on techniques originated by Carl Orff in Germany, Zoltan Kodaly in Hungary and Shinichi Suzuki in Japan. Authentic adaptations of music and materials in lecture, demonstration and workshop situations.	
MU 629	ADVANCED STRING PEDAGOGY	2 s.h.
	Study of specific techniques and problems of teaching violin, viola, cello, and double bass in both individual and class situations.	
MU 631	ADMINISTRATIVE PROBLEMS IN MUSIC EDUCATION	2 s.h.
	Review of conventional administrative organization of music education in public schools. Role of music director, music specialist, consultant, and music resource teacher will be carefully defined. Consideration of problems of scheduling in public school. Current issues concerned with music education and public education in general will be considered including curriculum development.	
MU 632	RESEARCH TECHNIQUES IN MUSIC	3 s.h.
	Study of research techniques appropriate for music and music education including selection of research problem, collection of data, types of research, survey of current research studies in music education and use of library in connection with research problems. Elements of statistics are introduced as needed to interpret research reports. As part of requirements, student will prepare a written plan for research project or thesis.	
MU 633	COMPARATIVE CHORAL METHODS	2 s.h.
	Materials and procedures of preparation of vocal groups for public performance. Several accepted, yet contrasting, approaches will be considered, ranging from the Christiansen technique to that of John Finley Williamson. Special attention to program building.	
MU 634	PRACTICUM IN INSTRUMENTAL MUSIC	2 s.h.
	Consideration of those materials and procedures which have been proven by actual use in the United States. These various approaches will be compared and critically analyzed by the class. Rehearsal techniques, efficient use of time and basic motivation will be stressed.	
MU 635	PSYCHOLOGY OF MUSIC EDUCATION	2 s.h.
	An analysis of latest evidence produced by field of psychology in music education as applied in actual classroom situations.	
MU 636	ADVANCED TECHNOLOGY OF MUSIC EDUCATION	2 s.h.
	Examination and application of modern communications media and their role in music education. Development of an experimental sound lab, use of electronic devices, synthesizers and computers. Application of systems approach and programmed learning to music education.	
MU 699	INDEPENDENT STUDY IN MUSIC	1-6 s.h.

APPLIED MUSIC (AM 601-771)

1-4 s.h.

The following courses will be taught in form of private lessons geared to individual student and aiming at maximum progress of each student, depending on background of the student and time available. The student should for any series of lessons use the first number in programming for the first time, the second number for the second time, etc.

AM 601, 651, 701, 751	Private Piano
AM 602, 652, 702, 752	Private Organ
AM 603, 653, 703, 753	Private Harpsicord
AM 605, 655, 705, 755	Private Voice
AM 606, 656, 705, 756	Private Violin
AM 607, 657, 707, 757	Private Viola
AM 608, 658, 708, 758	Private Cello
AM 609, 659, 709, 759	Private Bass Viol
AM 610, 660, 710, 760	Private Flute
AM 611, 661, 711, 761	Private Clarinet
AM 612, 662, 712, 762	Private Oboe
AM 613, 663, 713, 763	Private Bassoon
AM 614, 664, 714, 764	Private Saxophone
AM 615, 665, 715, 765	Private Trumpet
AM 616, 666, 716, 766	Private French Horn
AM 617, 667, 717, 767	Private Trombone
AM 618, 668, 718, 768	Private Baritone Horn
AM 619, 669, 719, 769	Private Tuba
AM 620, 670, 720, 770	Private Percussion
AM 621, 671, 721, 771	Private Guitar

PHILOSOPHY

Graduate courses in Philosophy are primarily designed to provide elective study in an unfamiliar discipline for teachers in the public schools. No graduate degree in Philosophy is offered. Degrees toward which credit in these courses may be used are indicated in the curriculum requirements sections of the catalog. Research or thesis work may be done in Philosophy with approval of the student's major program adviser.

COURSE DESCRIPTIONS

PH 580 READINGS IN RELIGIOUS THOUGHT

2 s.h.

An examination of religion as a vital human phenomenon. Treating both classical and contemporary themes; origin of western theological thinking; alienation; contemporary atheism; definitions of deity in western and eastern religions; the sacred; origins of religion.

PH 581 SPECIAL TOPICS

1-3 s.h.

PH 582	PROBLEMS OF ETHICS	2 s.h.
	Rational justification of moral judgments. Analysis of function and meaning of moral language. (Staff)	
PH 583	AMERICAN PHILOSOPHIC THOUGHT	2 s.h.
	Study of more influential and original philosophies developed in America from colonial period to present. (Staff)	
PH 584	PHILOSOPHY SEMINAR	2 s.h.
	Area research in the discipline, considering various facets of a central problem. Students doing a thesis or research project in Philosophy will register for this course. (Staff)	
PH 585	PROBLEMS IN LOGIC	2 s.h.
	Difficulties of meaning (semantics), formal structures of reasoning (syntaxics), and nature of truth finding (empirics) Fallacy.	
PH 599	INDEPENDENT STUDY	1-6 s.h.

PHYSICS

The graduate program in physics offers a choice of three degrees: a Master of Education, a Master of Arts, and a Master of Science. The student obtaining a master's degree for fulfillment of certification requirements usually selects either the Master of Education Degree or the Master of Arts Degree. The student obtaining a master's degree for additional preparation for research, an industrial position, or further graduate work will usually select the Master of Science Degree.

With a wide range of possible courses and research areas available, the student is required to have the consent of his/her department adviser before selecting a course or initiating a research project. Adviser assignments are made as soon as the acceptance of a graduate student reaches the physics department. The graduate student should arrange appointments with his/her adviser by contacting the secretary in the physics office.

Almost any combination of educational goals can be met.

MASTER OF EDUCATION IN PHYSICS

I. Professional Development Area — nine s.h.

A. Humanistic Studies (three s.h.) — One course must be selected from FE 514, 611, 612, 613.

B. Behavioral Studies (three s.h.) — One course must be selected from the following: EP 604, EP 573, EP 576, EP 578, EP 580, CE 629, CE 639, EX 631.

C. Research Coursework (three s.h.) — Students in this program must enroll in GR 615.

II. Specialization Core — nine s.h.

Students in this program must enroll in the following three courses for three s.h. each: PY 511, PY 512, SC 576.

III. Thesis (optional) — zero to four s.h.

Each student may undertake an individual research and complete an acceptable thesis under the direction of one of the Graduate Faculty. The semester hour requirement is fulfilled by enrolling in PY 850 for the proper number of semester hours as decided jointly by the student and his/her thesis adviser.

IV. Subject Area and/or Electives — eight to 15 s.h.

With the **written** approval of the graduate adviser, the student may complete the 30 s.h. requirement* by choosing from among any of the remaining courses in The Graduate School.

For description of FE courses, see section on FOUNDATIONS OF EDUCATION; for EP courses, EDUCATIONAL PSYCHOLOGY; for CE courses, COUNSELOR EDUCATION; for EX course, SPECIAL EDUCATION.

For description of GR courses, see entry under "GENERAL SERVICE COURSES," page 41.

*If the option of "no thesis" is exercised, an additional three s.h. are required bringing the total requirement to 33 s.h.

MASTER OF ARTS IN PHYSICS

This program is the most flexible of the three graduate degree programs offered by the Physics Department. Each student's program is designed to meet his or her individual needs by the student and adviser working together.

The educational goals of students in many categories can be met while the student is working to attain his/her degree. Several examples of the category of student who may select this degree program are:

1. The student whose undergraduate training is in Physics Education, Physical Science Education, or Science Education with a strong professional education component. This student may need more content than professional education. In this program the student may, with the concurrence of his/her adviser, enroll in exactly that ratio of content courses to professional education courses which are necessary to attain his/her goals.

2. The student who holds a teaching certificate in a field other than physics but is a secondary school physics teacher. These students often require formal course work in a number of areas of Physics in order to have Physics added to their certificate. This is normally a requirement of their school district and/or the Commonwealth. This program allows them to meet this requirement while working toward a degree.
3. The student who wishes to enroll in a cooperative program including those programs with internship components. Students may earn eight to 12 s.h. during a semester while interning under one of the special programs instituted by the University.

SUBJECT MATTER — 15 s.h. minimum.

Required coursework in Physics is to be selected from the Graduate Physics courses whose course number is 510 or greater. This selection must have the **prior** approval of the student's academic adviser and a notation of such approval is to appear in the student's folder.

ELECTIVES — 11 to 18 s.h.

The student may complete the requirements for an MA by selecting, with the approval of his/her adviser, from among the offerings of The Graduate School. The number of credits selected for electives depends upon the option exercised under Research and Thesis.

RESEARCH AND THESIS OPTION

Each Master of Arts student must complete degree requirements in one of the following two ways:

- A. Undertake an individual research problem and complete an acceptable thesis. For this option the student must schedule PY 600 for two s.h. and PY 850 for at least two s.h. If he/she selects this option he/she will have completed a minimum of 30 s.h. including these two courses for the degree.
- B. Decide, with the approval of his/her academic adviser, that he/she does not wish to undertake such a research problem. If this option is exercised, the student will not do a thesis but must complete a minimum of 33 s.h. of coursework.

For description of PY 850, see page 41.

MASTER OF SCIENCE IN PHYSICS

- I. Admission Requirements. Any student meeting the requirements of The Graduate School and having either a BA or BS with the major in physics will be permitted to initiate study in this curriculum. Students having other degrees that provide sufficient preparation in mathematics and physics may be permitted to initiate study with approval of the Chairperson of Physics.

II. Subject Matter Concentration

A minimum of six courses to be selected with the approval of the adviser from the following: PY 536, PH 601-602, PY 634, PY 641, PY 651, PY 652, PY 661-662.

III. Research Requirement

Research Requirement
Each Master of Science student is required to undertake an individual research problem and complete an acceptable thesis under the direction of one of the Graduate Faculty. The semester hour requirement is normally fulfilled by scheduling PY 600 and PY 850.

IV. Comprehensive Examination

The student is expected to pass a comprehensive examination.

V Free Electives

The student may complete the 30 s.h. requirement by choosing from among any of the offerings of The Graduate School, with, of course, the advice and approval of his/her graduate adviser.

For description of PY 850, see page 41.

COURSE DESCRIPTIONS

PY 507	INTRODUCTION TO MATHEMATICAL PHYSICS I	3 s.h.
Designed to provide background needed for most 500 level courses. Student will acquire skills in problem solving in areas of mechanics and wave motion utilizing calculus and vectors. Prerequisite: Permission of adviser.		
PY 508	INTRODUCTION TO MATHEMATICAL PHYSICS II	3 s.h.
A continuation of PY 507 Develops skills in problem solving in areas of electricity and magnetism utilizing vectors and calculus. Prerequisite: Permission of adviser.		
PY 510	INTRODUCTION TO THEORETICAL PHYSICS	3 s.h.
Application of mathematical methods to physical theory in area of mechanics, electricity and magnetism, including partial differentials, vector calculus, and non-cartesian coordinate systems. Intended primarily for individuals in the MEd program. Prerequisite: Permission of adviser.		
PY 511	SECONDARY SCHOOL PHYSICS LABORATORY PRACTICE	1-3 s.h.
Designed not only to give the student training in use of PSSC and Harvard Project Physics Laboratory materials, but also to increase his/her ability to make the lab a more effective teaching tool.		
PY 512	CURRICULUM DEVELOPMENTS IN SECONDARY SCHOOL PHYSICS	3 s.h.
Includes an intensive study of developments, such as PSSC and HPP. Philosophy, methodology and cognitive theory behind each curriculum will be considered. The lab equipment, experiments, and visual aids for each will be studied in their proper setting.		
PY 520	ADVANCED LABORATORY PRACTICE	3 s.h.
Experimental Physics. Experiments are made available to supplement student's previous training. Data interpretation and experimental techniques are emphasized. Topics can include but are not limited to various methods of measurement and analysis of radioactivity, interferometry, spectrometry, microwave optics, NMR, mechanical vibrating systems, and thermal properties.		

PY 531 MODERN PHYSICS	3 s.h.
An introduction to particle and wave properties of matter, atomic structure, quantum mechanics and the quantum mechanical model of the atom.	
PY 533 THERMAL AND STATISTICAL PHYSICS	3 s.h.
A unified approach to study of thermodynamics through use of statistical mechanics. Temperature, entropy, chemical potential and free energy are introduced and applied to a monatomic ideal gas and systems of fermions and bosons in quantum and classical regions.	
PY 535 ELECTRONICS	4 s.h.
DC and AC circuits, diode circuits, and transistors circuits, such as the common emitter and emitter follower amplifiers, are extensively covered. Negative feedback, operational amplifiers, oscillators, and digital logic are introduced. These topics are discussed in lecture and investigated by the student in the lab.	
PY 536 ADVANCED ELECTRONICS	3 s.h.
Field effect transistors, noise problems, grounding and shielding, applications of digital logic, digital to analog to digital conversion techniques, transmission lines, and RCA 110A applications. Two one-hour lectures and one three-hour lab. Prerequisite: PY 535.	
PY 541 ANALYTICAL MECHANICS I	2 s.h.
Kinematics, particle dynamics, gravitation, free and forced harmonic motion. Treatment of these topics utilizes vector calculus and differential and integral calculus.	
PY 542 ANALYTICAL MECHANICS II	2 s.h.
Central-force motion, high energy collisions, special relativity.	
PY 545 OPTICS	3 s.h.
Main concepts of modern optics utilized in areas of geometrical, wave and quantum optics. Includes presentation of illustrative examples in areas of laser technology, complex optical systems, interferometry, and spectroscopy.	
PY 551 ELECTRICITY AND MAGNETISM I	2 s.h.
Coulomb's Law, electrostatic potential, Gauss' Law, dielectrics will be presented using vector calculus in a modern field formalism. Prerequisite: PY 510.	
PY 552 ELECTRICITY AND MAGNETISM II	2 s.h.
Biot and Savart's Law, induced emf, vector potential, displacement current, special relativity and electromagnetic radiation will be presented using techniques introduced in PY 551. Prerequisite: PY 551.	
PY 561 QUANTUM MECHANICS I	3 s.h.
Introduction to theory of linear vector spaces, linear operators, eigenvalues, eigenvectors and eigenfunction and their application to the harmonic oscillator, hydrogen atom, electron in a magnetic field, scattering and perturbations. Prerequisites: PY 222 and PY 331.	
PY 565 INTRODUCTION TO NUCLEAR PHYSICS	3 s.h.
Survey of introduction nuclear physics including: nuclear size, mass, types of decay, models, forces, elementary particles, reaction theory	
PY 599 SPECIAL STUDIES	1-6 s.h.
A special topic may be offered at the discretion of the department to fulfill a special necessity	

PY 600	METHODS OF RESEARCH IN PHYSICS	2 s.h.
Offers the student practical training in special methods and materials of research in physics. Emphasis on types of research, use of physics and physics-related journals and library facilities. Prerequisite: Permission of department.		
PY 601	THEORETICAL PHYSICS I	3 s.h.
Serves as a preparation in mathematical physics for graduate student. Included will be vector analysis, curvilinear coordinate systems, infinite series, complex variables and the calculus of residues, ordinary and partial differential equations. Prerequisite: Permission of department.		
PY 602	THEORETICAL PHYSICS II	3 s.h.
A continuation of PY 601, covering Tensor analysis, matrices, group theory, Sturm-Liouville Theory, special functions, Fourier Series, integral transforms, Green's Functions, integral equations. Prerequisite: PY 601.		
PY 634	STATISTICAL MECHANICS	3 s.h.
A quantum approach to statistical mechanics. Fermi, Bose, ideal gas and imperfect gas systems are investigated. Selected topics in kinetic theory of gases, transport phenomena, magnetic systems and liquid helium. Co-requisite: PY 561 or its equivalent.		
PY 641	ADVANCED MECHANICS I	3 s.h.
Includes the following topics: LaGrange's Equations, Hamilton's Principle, Two body central force, Euler's Theorem, Small Oscillations, Hamilton's Equations, canonical Transformations. Prerequisite: PY 312 or its equivalent.		
PY 642	ADVANCED MECHANICS II	3 s.h.
Rigid body mechanics, including Angular Momentum, Euler's equations, Precessions, Special relativity, Covariant four dimensional formulation, Covariant Lagrangian formulation, Hamilton-Jacobi Theory, Introduction to classical field theory. Prerequisite: PY 641 or equivalent.		
PY 651	ADVANCED ELECTROMAGNETIC THEORY I	3 s.h.
Solution of boundary value problems using Green's functions and separation of variables techniques. Cartesian and spherical coordinate systems, multipole expansions, macroscopic electrostatics and magnetostatics, Maxwell's equations and plane electromagnetic waves. Prerequisite: PY 323 or equivalent.		
PY 652	ADVANCED ELECTROMAGNETIC THEORY II	3 s.h.
Solution of electrostatic problems using cylindrical coordinates. Green's function for time-dependent wave equation, conservation laws, wave guides and resonant cavities, special Theory of Relativity, simple radiating systems and diffraction. Prerequisite: PY 651.		
PY 657	SOLID STATE THEORY	3 s.h.
Quantum approach to solid state. Topics include second quantization of fermion and boson systems, electron theory of metals, electron-phonon interactions, and superconductivity. Selected subjects in thermal transport, magnetic phenomena. Co-requisite: PY 561 or its equivalent.		
PY 661	QUANTUM MECHANICS I	3 s.h.
Fundamental concepts of quantum mechanics, theory of representations and linear vector spaces, relationship between quantum and classical mechanics. Approximation methods for stationary problems with applications to central potentials.		
PY 662	QUANTUM MECHANICS II	3 s.h.
Approximation methods for time dependent problems with application to scattering and transition theory. Elementary theory of many particle systems with applications to molecules and chemical bonds, fundamentals of the quantum theory of solids, Dirac theory.		

PY 690 RESEARCH PROBLEMS IN PHYSICS

1-6 s.h.

Introduction to advanced research problems through individual assignment.
Prerequisite: Permission of department.

SCIENCE COURSES

SC 575 THE GROWTH OF SCIENCE AND ITS CONCEPTS I

3 s.h.

Traces development of science and its concepts from early beginnings to time of Newton. Interaction of science and math and their impact on growing society of Western Civilization is treated in a non-mathematical manner. Three hours lecture per week.

SC 576 THE GROWTH OF SCIENCE AND ITS CONCEPTS II

3 s.h.

Influence and development of concepts of science in Western Civilization are studied from Newton to present time. While the concurrent development of mathematics is considered, stress is placed on the non-mathematical understanding of basic concepts. Three hours lecture per week.

POLITICAL SCIENCE

The Political Science Department offers the MA in Public Affairs degree, with concentrations in Political Studies, International Studies, and Public Affairs.

MASTER OF ARTS IN PUBLIC AFFAIRS

The MA in Public Affairs program is designed for part-time and full-time students who are seeking or are engaged in professional careers as administrators, project directors, staff analysts, supervisors in government and in human service agency delivery systems, and teachers in the Social Sciences.

The MA in Public Affairs degree requires a minimum of 30-39 s.h. including a research and/or internship requirement. In order to complete a program for his or her particular professional needs, however, a student may be required to complete specific courses, not for graduate credit, in statistics, accounting, business administration, computer skills, foreign language, economics, political science, psychology, and sociology. The student should have sufficient preparation in the social science, or equivalent professional experience, in order to perform satisfactorily in the program. These requirements may be satisfied by prior course work, correspondence courses, qualifying examinations, or undergraduate courses offered at IUP. These preparatory

requirements will be determined by the Political Science Department upon formal application to The Graduate School and may be completed after admission to The Graduate School prior to admission to candidacy for degree.

Students select one of three concentrations for course work: (A) Political Studies (24 s.h. in Political Science); (B) International Studies (24 s.h. in Political Science, with at least 12 in international and comparative areas, **and** Foreign Language reading competency established by exam.); (C) Public Affairs (30 s.h. including PS 570 **and** PS 571 **and** two of the following courses: PS 555, 666, 673, or a course in Public Financial Management, **and** a Computer Science course, **and** a **Statistics** course, **and** 12 credits of electives — See Department for approved list.)

The Research Requirement (six to nine s.h.) may be met by scheduling SS 614 or GR 615 or PS 674 plus three s.h. thesis credit; or six s.h. Internship (with Research Project), PS 695, (required for students with Public Affairs Major).

For description of SS course, see SOCIAL SCIENCE.

For description of GR courses, see entry under "GENERAL SERVICE COURSES," page 41.

COURSE DESCRIPTION

PS 520 INTERNATIONAL LAW

3 s.h.

Study of the development, nature, and function of international law, including recent trends.

PS 521 INTERNATIONAL ORGANIZATIONS

3 s.h.

Inquiry into purposes, structures, and actions of contemporary international political organizations, such as United Nations, regional and functional organizations.

PS 544 SCIENCE/TECHNOLOGY AND PUBLIC POLICY

3 s.h.

Focuses on the interactions of science/technology and politics as they impinge on the public decision-making process. Technology generated socio-political problems are investigated on local, state, national, and international level, the adequacy of political processes and institutions for solving problems in the technological age is questioned.

PS 550 THE PRESIDENCY

3 s.h.

Examines the Office of President with attention to constitutional foundations, evolution, structure powers, and functions. Comparisons are made between presidential and parliamentary systems and between offices of President and Governor.

PS 551 THE LEGISLATIVE PROCESS

3 s.h.

Legislative process in the U.S. with emphasis on Congress and the Pennsylvania General Assembly. Focus on organization and function of legislative bodies, with American legislative institutions compared with those of other nations.

PS 552 PUBLIC OPINION

3 s.h.

Nature of public opinion within political system. Attention to formation of public opinion, expression, propaganda, mass media, interest groups, and polling.

PS 553 AMERICAN POLITICAL PARTIES

3 s.h.

Role of people, parties, and pressure groups in politics of American democracy. Attention to sectional and historic roots of national politics, voting behavior, pressure group analysis, and campaign activities.

PS 554 METROPOLITAN PROBLEMS	3 s.h.
Analyzes multiplicity of problems facing our metropolitan areas such as urban renewal, shrinking tax base, federal aid to cities, subsidized mass transit, municipal authorities, and political consolidation.	
PS 555 FEDERALISM	3 s.h.
Explores the characteristics of federal system of government with emphasis on theories, origins, institutions, and problems in intergovernmental relations in the U.S.; federal systems in other nations; and trends.	
PS 556 MASS MEDIA IN AMERICAN POLITICS	3 s.h.
Variant theories of the symbiotic relationship between American politics and the press are examined in the light of the American colonial-national experience. The special constitutional rights given to the media are explored, with particular attention to radio-TV.	
PS 557 LABOR AND BUSINESS IN POLITICS	3 s.h.
An in-depth study and analysis of labor and business involvement in politics is the focus of the course. Special attention will be given to the involvement of labor and business in Pennsylvania politics as well as to the relationship between the two competing groups — conflict or cooperation.	
PS 558 JUDICIAL PROCESS	3 s.h.
Explores nature and limits of judicial power, courts as policy-making bodies, selection of judges, decision process, external forces impinging on the courts, and role of Supreme Court in its relationship with Congress, the Presidency, and federalism.	
PS 559 CONSTITUTIONAL LAW AND CIVIL LIBERTIES	3 s.h.
Study of civil liberties and civil rights issues through leading Supreme Court decisions. Topics include First Amendment rights, procedural due process and the Bill of Rights, and equal protection problems.	
PS 560 CLASSICAL POLITICAL THOUGHT	3 s.h.
Evolution of Western political tradition of Constitutionalism from Plato and Aristotle to Locke and Montesquieu; religious and rational foundations; medieval theories of authority and representation; early modern theories of state and sovereignty. Concepts of law, natural rights, liberty, equality, and justice are treated in detail.	
PS 561 MODERN POLITICAL THOUGHT	3 s.h.
Development of Western political thought since the mid-16th century; classic liberalism conservative thought; modern irrational ideologies such as fascism and national socialism; socialist thought; contemporary collectivist liberalism.	
PS 562 AMERICAN POLITICAL THOUGHT	3 s.h.
Develops an understanding of American political thinkers from the Puritans through the current Afro-American writers. Political phenomena is examined relating to past writings and inferences are made for future political behavior.	
PS 570 INTRODUCTION TO PUBLIC ADMINISTRATION	3 s.h.
Examines the environment of public administration; organizational structure, executive functions, the politics and tools of administration, personnel processes, financial administration and the problems of democratic control of bureaucracy.	
PS 571 ISSUES IN PUBLIC ADMINISTRATION	3 s.h.
Intensive study of role of agencies and their administrators in determining and developing public policy. Public administration in practice is emphasized by utilizing case studies.	

PS 580	SOVIET POLITICS	3 s.h.
Essential features of Communist party and government of U.S.S.R., including geographical and historical background and ideological and theoretical foundations.		
PS 581	SPECIAL TOPICS	1-3 s.h.
In depth study of a specific problem or topic not regularly treated in courses. May be repeated.		
PS 582-		
587	POLITICAL SYSTEMS	3 s.h.
Comparative study of government and politics of a selected region.		
PS 582	AFRICA	
PS 583	ASIA	
PS 584	MIDDLE EAST	
PS 585	CENTRAL AND EASTERN EUROPE	
PS 586	ATLANTIC COMMUNITY	
PS 587	LATIN AMERICA	
PS 588	POLITICAL-MILITARY STRATEGY	3 s.h.
Deals with national security problems including decision-making and budgeting, levels of strategy, the utility of force, and the impact of the military on American Society.		
PS 589	DEVELOPING NATIONS	3 s.h.
Deals with the political characteristics of emerging nations; the impact of economic and social change upon political structure; evolving patterns of political development; and techniques of nation-building.		
PS 631	HUMAN RESOURCE MANAGEMENT IN PUBLIC SECTOR	3 s.h.
This course is an in-depth study of human resource management systems with special focus on public sector organizations. Emphasized will be the development of an understanding of traditional functional systems as well as skills necessary to successfully manage such systems.		
PS 666	PUBLIC POLICY ANALYSIS	3 s.h.
Examines public policy using analytical tools and policy models. Considered within this framework are values and resources, the cultural-political environment, the policy-making process, evaluation methods and their application to major policy areas.		
PS 670	FOREIGN POLICY STUDIES	3 s.h.
Considers selected problems in international affairs. Emphasis on those problems and conflicts which have evolved in the post-war era, particularly as they relate to position of the United States in world affairs. Specific problems are approached both in terms of countries involved and the existing balance in world economic, ideological, and power structure.		
PS 672	COMPARATIVE POLITICAL STUDIES	3 s.h.
Theory, structure, politics, and problems of selected foreign governments are analyzed from comparative point of view. Special emphasis on comparing and contrasting ideas and institutions with those of the U.S.		

PS 673 REGIONAL POLITICAL STUDIES 3 s.h.
Examines structure and function of state, county, and municipal governments. Emphasizes understanding and analysis of problems faced by government at local levels. Pennsylvania governmental forms as stressed and compared with those of other states.

PS 674 SCOPE AND METHODS 3 s.h.
Expose the student to approaches, methods, tools, focus, and boundary lines of political science study. As a research methods course in graduate political science, it should be scheduled early in program.

PS 695 POLITICAL SCIENCE INTERNSHIP 1-6 s.h.
Practical experience in government and politics. Students are individually assigned to a cooperating local or state government agency, political party, or interest group, or to a federal or international agency when arrangements can be made. Students report periodically to professor in charge, and undertake reading assignments and write such reports and papers as the professor may require. Prerequisite: Must have approval of instructor and department chairperson. Course is offered when arrangements for internship can be made with cooperating agencies. Required (six s.h.) for Public Affairs concentration.

PS 699 INDEPENDENT STUDY 1-3 s.h.
Readings and written assignments on a specific topic determined by student and instructor in charge. May be repeated.

PS 850 THESIS 1-3 s.h.

NOTE: No more than 50 per cent of credits counted toward graduate degree may be in 500-level courses.

PROFESSIONAL GROWTH

The Professional Growth program leading to an MA, MS, or MEd is a highly restricted and specially structured course of studies determined by the student and his/her advisory committee. A four s.h. committee thesis is required, as well as the course GR 615 Elements of Research. For further information write Professional Growth Degree, The Graduate School, IUP, Indiana, Pennsylvania 15705.

PSYCHOLOGY

The Psychology Department offers a Master of Arts degree with concentrations in three areas: General Experimental, Clinical, and Community Psychology. The areas of concentration are so designed that graduates will be prepared to either immediately assume responsibilities in appropriate professional settings or proceed to doctoral level study. The department also offers courses open to students following other degree programs in The Graduate School.

MASTER OF ARTS IN PSYCHOLOGY

In addition to meeting the requirements for admission to The Graduate School, a student intending to work toward a Master of Arts in Psychology must have earned a B average or higher in courses taken in psychology, taken GRE's, and have submitted the Psychology Department admission form.

After completion of 18 hours of graduate work in psychology at IUP a student must formally apply to the Psychology Department's Graduate Admissions Committee for admission to degree candidacy. At this time, the applicant must have attained at least 3.0 GPA, present satisfactory scores on the Graduate Record Examination (both Aptitude and Advanced Tests) and receive recommendations from faculty members familiar with his/her work. In applying for candidacy specific courses must be included as part of the approved credits. These courses and further information on candidacy are included in the "Psychology Graduate Student Handbook" which is distributed to all new graduate students and is available from the department. Moreover, in the clinical concentration there is an evaluation of each graduate student which forms the basis for the recommendation for candidacy. The student should also submit for approval a complete course program planned in consultation with his/her adviser. A recommendation to not grant candidacy may result in probation or dismissal from the department's program.

The Psychology Department has established guidelines for the registration and completion of the thesis, transfer to another concentration within the Psychology MA program, academic good standing, full time student status, the appeals process, and other academic matters. These guidelines are explained in the "Psychology Graduate Student Handbook." The MA in Psychology will be awarded at the successful completion of 45 s.h. work in the Clinical or Community concentrations or 33 s.h. work in the General Experimental Concentration.

Course requirements for the different concentrations include a six s.h. thesis and the following:

Clinical Concentration — PC 601, PC 641 and 642, PC 643 and 644, PC 646, plus specified electives and Practicum for nine to 12 s.h. The clinical concentration is a license acceptable program in Pennsylvania.

Community Concentration — PC 601, 602 and 603, PC 640, PC 654, or PC 569, and Practicum for nine to 12 s.h.

General-Experimental — PC 601 and 602.

COURSE DESCRIPTIONS

PC 510 HISTORICAL TRENDS IN PSYCHOLOGY

3 s.h.

Comprehensive overview of historical antecedents of contemporary psychology.
Prerequisite: Psychology major.

PC 554 DEVELOPMENTAL PSYCHOLOGY

3 s.h.

A comprehensive study of human growth and development from conception to death. Major research findings and developmental theories will be considered.

PC 556 THE PSYCHOLOGY OF PERSONALITY	3 s.h.
An overview of integration of the major theories of personality	
PC 557 ABNORMAL PSYCHOLOGY	3 s.h.
Theories of pathological behavior with reference to clinical and experimental data.	
PC 545 PRINCIPLES OF BEHAVIOR MODIFICATION	3 s.h.
Applications of learning theory principles in changing maladaptive behavior, both on the individual and group units. Prerequisite: Permission.	
PC 558 SOCIAL PSYCHOLOGY	3 s.h.
A scientific approach to the study of behavior and experience of individuals in relation to other individuals, groups and culture.	
PC 561 MOTIVATION	3 s.h.
A systematic study of how behavior is initiated, sustained, directed, and terminated. Lab projects are conducted. Prerequisites: Course in Experimental Psychology, Psychology major or permission.	
PC 562 PHYSIOLOGICAL PSYCHOLOGY	3 s.h.
The relationship between behavior and the anatomy and physiology of the nervous system. Lab projects are conducted. Prerequisites: Course in experimental psychology; Psychology major or permission.	
PC 563 HUMAN COGNITION: PERCEPTION	3 s.h.
The interaction of sensory and cognitive events in production of awareness of the world. Lab projects are conducted. Prerequisites: Course in experimental psychology; Psychology major or permission.	
PC 564 PSYCHOPHARMACOLOGY	3 s.h.
Survey of the theoretical and empirical foundations of psychopharmacology. Topics include discussions of basic principles of pharmacology, theories of drug action, structure and function of the nervous system with special emphasis on current findings on neurotransmitters and the site of action of psychoactive drugs. Prerequisite: 12 hours of psychology.	
PC 565 CONDITIONING AND LEARNING	3 s.h.
The focus is on animal research with discussion of classical conditioning, discrimination learning, and aversive control of behavior. Lab projects are conducted. Prerequisites: Course in experimental psychology; Psychology major or permission.	
PC 566 HUMAN COGNITION: LEARNING	3 s.h.
The methodology employed in areas of verbal learning and retention, encoding, storage, and retrieval processes. Lab projects are conducted. Prerequisites: Psychology major or permission.	
PC 567 ANIMAL BEHAVIOR	3 s.h.
Behavior of various animal species and men are examined from the position of evolution of behavior as adaptation to a changing ecology.	
PC 568 LEARNING THEORIES	3 s.h.
A review of current research and theoretical developments in psychology of learning	
PC 569 INDUSTRIAL/ORGANIZATIONAL PSYCHOLOGY	3 s.h.
Study of psychological principles in an organizational setting of behavior, application of psychological principles to individual behavior and experience in organizations.	

- PC 574 ADULT DEVELOPMENT AND AGING 3 s.h.
A review of theories and research which apply to young, middle, and later adulthood, with particular emphasis on old age.
- PC 578 PSYCHOLOGY OF DEATH AND DYING 3 s.h.
Emphasizes the theories and research which delineate the psychological factors affecting the dying person as well as those people close to someone who is dying. Psychological, social and cognitive factors affecting one's attitude toward death and approaches to coping with dying and death are studied. Prerequisite: Departmental consent.
- PC 581
681 SPECIAL TOPICS 3 s.h.
Designed to examine a special topic in depth. Students prepare presentations representing selected research areas. Departmental consent.
- PC 601 RESEARCH METHODS IN PSYCHOLOGY I 3 s.h.
The design, statistical analysis, and report of laboratory experiments will be studied. Prerequisite: Undergraduate courses in statistics are experimental psychology.
- PC 602 RESEARCH METHODS IN PSYCHOLOGY II 3 s.h.
An intuitive presentation of the methods, the use of computer programs, and applications of psychological research of selected multivariate techniques. Prerequisites: PC 601 or equivalent familiarity with analysis of variance and correlation or regression techniques.
- PC 603 EVALUATION RESEARCH 3 s.h.
Introduction to the methodological issues involved in validly assessing the effectiveness of intervention programs relevant to psychology (e.g., human service programs), including a consideration of how the results of evaluation research can be used to improve such programs. Students will participate in either actual or simulated evaluation research projects. Prerequisite: Permission.
- PC 635 ADVANCED PSYCHOPATHOLOGY 3 s.h.
An in-depth study of the description, causes, and treatment of behaviors considered abnormal by our society. The course integrates and extends previous materials in abnormal behavior, assessment, therapy, research methodology, and professional practice. Prerequisites: Previous undergraduate course in Abnormal Psychology; Permission.
- PC 636 PSYCHOLOGY OF LEARNING 3 s.h.
Examination of classical and operant conditioning, and their basis for behavior modification techniques.
- PC 640 COMMUNITY PSYCHOLOGY 3 s.h.
An introduction to community psychology as an ecological approach to the understanding and changing of behavior, an emphasis on prevention rather than treatment of disorders, and a concern with a wide variety of human problems.
- PC 641 PSYCHOLOGICAL ASSESSMENT I 3 s.h.
Beginning course in theoretical issues and development of skills in assessing psychological functioning and in report writing. Beginning emphasis on intellectual assessment followed by the development of an increasing variety of assessment tools. Prerequisites: Permission.
- PC 642 PSYCHOLOGICAL ASSESSMENT II 3 s.h.
Continuation of PC 641 with increased emphasis on development of skills in areas of objective and projective tests, behavioral observations, and self-report measures, and other assessment techniques. Prerequisites: PC 641; Permission.

PC 643 METHODS OF INTERVENTION I

3 s.h.

Methods of studying and improving competency in interpersonal skills as a necessary ingredient in most models of therapy, such as psychoanalysis, client centered, behavior modification, etc. Emphasis placed on theory, research, and personal competence in communication. Prerequisite: Departmental consent.

PC 644 METHODS OF INTERVENTION II

3 s.h.

Emphasis is placed upon the systematic study and application of social influence techniques to the modification of clinical problems. A broad spectrum of cognitive, physiological and behavior change procedures are studied and evaluated with regard to their cost and effectiveness. A general problem-solving model for decision making, case evaluation, and accountability is advanced. Prerequisites: Methods of intervention I; Departmental consent.

PC 646 CLINICAL GROUP TECHNIQUES

3 s.h.

Provides instruction and experience in a variety of group techniques. Includes lectures, demonstrations, and participation in group exercises useful in the clinical psychology profession. Prerequisite: Permission.

PC 650 PLANNED SOCIAL CHANGE

3 s.h.

Comparative evaluation of strategies for changing human behavior. Emphasis on techniques which alter the environmental context in which the behavior occurs.

PC 652 ENVIRONMENTAL PSYCHOLOGY

3 s.h.

The relationship between human behavior and its environmental context. Emphasis on the role of physical and social environments in creating and perpetuating social problems.

**PC 654 THEORY AND RESEARCH IN ORGANIZATIONAL
PSYCHOLOGY**

3 s.h.

The study of the effects of the work situation and of personal, interpersonal, and structural variables upon individual behavior and experience in organizations. Prerequisite: Industrial psychology, or industrial sociology, introductory coursework in psychology and in behavioral science statistics.

PC 670 PROFESSIONAL ISSUES

3 s.h.

An examination of professional problems in the field of clinical psychology. Includes topics such as training philosophies, licensure, legal issues such as involuntary commitment and expert witness, ethical standards, and professional organizations. Prerequisite: Departmental consent.

PC 675 ADVANCED PSYCHOLOGICAL PRACTICUM

1-12 s.h.

Provides graduate students with experience in applied settings. Prerequisite: Permission of Graduate Admission Committee, variable depending on setting.

PC 699 INDEPENDENT STUDY IN PSYCHOLOGY

1-6 s.h.

Individual students develop and conduct research studies in consultation with a faculty member. Prerequisites: Psychology major, departmental consent.

PC 850 THESIS

1-6 s.h.

A six s.h. thesis is required in each concentration. The thesis proposal must be approved by the end of the third full semester of graduate work or at the completion of 36 s.h.

READING

There is a continuing need for qualified and properly certified Reading Specialists and Reading Supervisors in the public and parochial schools, at both elementary and secondary school levels.

In keeping with these demands, IUP provides and directs the formal learning experiences of the Reading Specialist and Reading Supervisor at the graduate level. These learning experiences entail classroom and clinical instruction and field experiences by faculty members who are sincere and dedicated to the students and the programs. In addition, the faculty members represent a marked balance with a variety of backgrounds and areas of expertise — reading, elementary and secondary education, psychology and reading research.

Students seeking a Master of Education degree with a major in reading and who desire certification as Reading Specialists are required to complete a minimum of 36 s.h. of course work selected from the curriculum designed for the preparation of Reading Specialists.

A student who wishes to secure reading specialist certification and does not desire a Master of Education degree may do so by formulating a program upon admission to The Graduate School. The program for each student will be formulated based on the student's needs, educational experiences and teaching experiences. All students who desire certification are required to either take the required courses as outlined in Program for Reading Specialist, or demonstrate or document the competencies required in the program.

Criteria for final recommendation for certification of program enrollees are as follows:

1. Mastery of competencies determined through the use of oral and/or written examination administered by Reading Faculty. Overall grade point average of B; in both ED 602 and 603, a grade of B is required.
2. Recommendation of Reading faculty.

Procedures for Admission

An applicant must first be admitted to The Graduate School as a qualified student. Upon receipt of an acceptance letter the Coordinator of the Graduate Reading Program will send the applicant the necessary forms for the Reading Program and the name of his/her adviser. Applicants may be requested to report for an interview with the Reading Faculty.

Upon admission to the Reading Program, each student should arrange to meet with his/her adviser to formulate an approved program of courses. (Note that GR 615 Elements of Research should be taken during the first 12 s.h. of graduate work.)

Acceptance into The Graduate School only permits a student to take course work in a department. If a student wishes to become a degree candidate, he/she must complete the Application to Candidacy form and forward this form to The Graduate School within the first 12 s.h. of course work in the department.

READING SPECIALIST PROGRAM

- I. Professional Development (nine s.h.)
 - A. Humanistic Studies (three s.h.): FE 611, FE 612, FE 613, FE 514.
 - B. Behavioral Studies (three s.h.): EP 604*, EP 573*, EP 576*, EP 578*.
EP 580, CE 629, CE 639, EX 631.
 - C. Research (three s.h.): GR 615
- II. Specialization Core (six s.h.): ED 600**, ED 601**
- III. Subject Area*** (21 s.h.): ED 602**, ED 603**, ED 510**, ED 607, ED 508, ED 620, ED 699, ED 697, ED 698**, EL 644, EL 647, EL 648, EL 655, EN 631, EN 633, EX 631, EX 665, EX 666.

*Students will select one for certification.

**Required of students seeking certification.

***If thesis option is selected, minimum is 17 s.h.

For description of FE courses, see section on FOUNDATIONS OF EDUCATION; for EP courses, EDUCATIONAL PSYCHOLOGY; for CE courses, COUNSELOR EDUCATION; for EX courses, SPECIAL EDUCATION; for EL courses, ELEMENTARY EDUCATION; for EN courses, ENGLISH.

For description of GR courses, see entry under "GENERAL SERVICE COURSES," page 41.

READING SUPERVISOR PROGRAM

Procedures for Admission

Students must possess a reading specialist certificate. Before applying for supervisor's certification, the person must have five years experience as a reading specialist.

Program

Students will plan their program on an individual basis with the Coordinator of Reading. A minimum of 18 s.h. beyond the MEd program is required. Students may be required to take additional courses for competencies not achieved at the MEd level.

- A. Required Courses: EL 631, EL 653; ED 670; EP 662 or CE 629.
- B. Electives: (Select Two): ED 604, ED 605; ED 620; ED 699; ED 697; EL 632; EL 644; CE 645.

For description of EL courses, see section on ELEMENTARY EDUCATION; for EP courses, EDUCATIONAL PSYCHOLOGY; for CE courses, COUNSELOR EDUCATION

COURSE DESCRIPTIONS

ED 508 READING IN THE CONTENT AREAS

3 s h

Provides techniques for reading specialists to work with teachers in both elementary and secondary schools for developing competencies in subject matter areas as part of the regular classroom instruction. Open, also, to classroom teachers — elementary and secondary levels

**ED 510 THE TEACHING OF READING IN THE
SECONDARY SCHOOL**

3 s.h.

Emphases include reading improvement practices with developmental, corrective and remedial readers in the middle, junior and senior high schools. Attention to both college, preparatory students and those needing survival skills as well as to work with related professional personnel. A mini-practicum in developmental reading is included.

ED 600 BASIC FOUNDATIONS OF READING INSTRUCTION

3 s.h.

Emphasis on nature of reading process; nature of learner; advancement of pupil's reading skills; how pupil learns to read; what teacher can do when pupils fail to learn to read.

**ED 601 DIAGNOSIS AND REMEDIATION OF
READING DISABILITIES**

3 s.h.

Students will appraise reading difficulties of individuals with emphasis on general principles and types of diagnosis appropriate to classroom and clinic. Examination and administration of diagnostic instruments as well as methods and materials used in remediation at the elementary and secondary level will be discussed and demonstrated. Prerequisite: DE 600 (applies to Reading majors only.)

**ED 602 READING PRACTICUM: DIAGNOSTIC CASE STUDIES
(Clinical Experience I)**

3 s.h.

Students will administer and interpret a battery of diagnostic instruments, both formal and informal, to a small group of children. Emphasis will be placed on interview and observation techniques as well as diagnostic teaching. A needs assessment for each child will be completed. All work will be done under the supervision of the Reading Specialist Program faculty. Prerequisites: ED 600, ED 601, and ED 510.

**ED 603 READING PRACTICUM: REMEDIAL CASE STUDIES
(Clinical Experience II)**

3 s.h.

Students will complete an in-depth needs assessment as well as design and implement a remedial program for a small group of children. Emphasis will be placed on the application of specialized remedial techniques. All work will be done under the supervision of Reading Specialist Program faculty. Prerequisites: ED 600, ED 601, and ED 510.

ED 604 REMEDIATION OF SEVERE READING DISABILITY CASES

3 s.h.

Analysis and treatment of severely disabled readers under the supervision of specially prepared University personnel. Prerequisite: Permission of Coordinator.

**ED 605 ORGANIZATION AND ADMINISTRATION OF
READING PROGRAMS**

3 s.h.

Emphasis on patterns of organization, approaches to instruction and use of appropriate materials which can be adopted to operation of a total school reading program in meeting individual, group and special needs of students.

**ED 607 INSTRUCTIONAL MATERIALS IN READING FOR
CHILDREN AND YOUTH**

3 s.h.

Designed to guide teachers, librarians, principals, reading specialists, and other curriculum workers in viable choices of appropriate materials for reading instruction.

**ED 620 READING INSTRUCTION FOR THE
CULTURALLY DISADVANTAGED**

3 s.h.

Emphasizes the sociological, psychological, linguistic, and educational variables that affect the disadvantaged reader.

ED 670 PRACTICUM AND SEMINAR FOR READING SUPERVISORS 3 s.h.
A supervised field experience relevant to the duties of the reading supervisor in elementary and secondary schools, provides students the opportunity to translate theory into practice. Prerequisite: Permission of Coordinator.

ED 697 SEMINAR IN SPECIAL PROBLEMS IN READING 3 s.h.
Topics such as reading disability, preschool reading instruction and adult literary programs will be covered.

ED 698 RESEARCH SEMINAR IN READING 3 s.h.
Designed to insure that students be able to read and understand reading research and statistical applications related to the field of reading. Students will interpret "t" test, AOV, repeated measures and correlations. Emphasis on application and understanding of statistical information and not solving mathematical formulas.

ED 699 INDEPENDENT STUDY IN READING EDUCATION 1-3 s.h.
The student with cooperation of the reading faculty member with whom he/she expects to work and his/her reading faculty adviser, engages in a study individually or with a small group on some problem or field not clearly defined in existing courses. Prerequisite: Permission of Coordinator.

SCIENCE FOR THE ELEMENTARY SCHOOL TEACHER

The program leading to a Master of Education Degree in Elementary Science is designed to give elementary teachers depth and competency in the content areas of the physical and biological sciences. The assemblage of courses cited below should prepare the student for work as an Elementary Science resource person within his/her school or school district. Except for GR 615, GS 602, and GS 561 all of these courses are not open to majors in Biology, Chemistry, or Physics.

Following admission to The Graduate School, each candidate will be assigned an adviser who will assist the student in planning an approved program of courses.

MASTER OF EDUCATION IN ELEMENTARY SCIENCE

This program is not intended for certification in science at the secondary level. It is designed to provide the elementary teacher with an opportunity to increase his/her ability to teach science at the elementary level. Students working for this degree with a major in Elementary Science will complete 30 s.h. of work in accordance with the following divisions if a thesis is completed. If no thesis is selected, 33 s.h. must be completed.

I. Professional Development Area (nine s.h.)

A. Humanistic Studies (three s.h.) — One of the following: FE 611, FE 612, FE 613, or FE 514

B. Behavioral Studies (three s.h.) — One of the following: EP 604, EP 573, EP 576, EP 578, EP 580, CE 629, CE 639, EX 631 or EX 638.

C. Research (three s.h.)

GR 615 Elements of Research

II. Specialization Core — (six s.h.)

III. Subject Area and/or thesis — (15-18 s.h.)

Subject Matter Concentration Area — 15-18 s.h. of work in subject matter content are to be selected from the following courses except that a more advanced course may be required by the adviser if the background of the student warrants: ES 610-611, ES 630, ES 640, ES 650, ES 660, ES 664, ES 666, ES 674, ES 680, ES 688, ES 692, GS 602, GS 561, EM 651, MI 500.

For description of FE courses, see section on FOUNDATIONS OF EDUCATION; for EP courses, EDUCATIONAL PSYCHOLOGY; for CE courses, COUNSELOR EDUCATION; for EX course, SPECIAL EDUCATION; for GS courses, GEOSCIENCE; for BI and MI courses, BIOLOGY; for EM course, MATHEMATICS FOR ELEMENTARY SCHOOL TEACHER.

For description of GR courses, see entry under "GENERAL SERVICE COURSES," page 41.

COURSE DESCRIPTIONS

ES 610 EDUCATION IN THE OUT-OF-DOORS

3 s.h.

Specifically designed to teach the elementary teacher to coordinate all of the elementary subjects into lessons taught in the out-of-doors that cannot ordinarily be taught in the classroom (Summers only)

ES 611 EDUCATION IN THE OUT-OF-DOORS

3 s.h.

Specifically designed to teach the elementary teacher to coordinate all of the elementary subjects into lessons taught in the out-of-doors that cannot ordinarily be taught in the classroom. (Summer only).

ES 630 QUANTITATIVE TOOLS FOR EL. SCIENCE

3 s.h.

Proficiency in quantitative aspects of science Emphasis on practical problem solving related to typical lab data Instruments, instrument calibration, graphing, and graph interpretation (interpolation and extrapolation) Area under the curve idea and meaning of slope on a graph will be explored extensively Concentrated instruction in use of slide rule, use of logarithms and significant figures as tools to achieve above objectives (Wolfe)

ES 640 CHEMISTRY IN ELEMENTARY SCIENCE EDUCATION

3 s h

Principles of chemistry through lab and or field-centered experiences relevant to teaching chemistry in elementary school. Recommended for all elementary education majors (Zambotti)

ES 650 PHYSICS IN ELEMENTARY SCIENCE EDUCATION

3 s.h.

Development of basic concepts in physics on a quantitatively plausible basis appropriate for elementary science. Lab work is designed to develop an understanding of force, work, and energy, and conservation of energy in mechanical thermal and electrical systems. Operational definitions and formulation and use of physical models. (Riban)

ES 660	BOTANY IN ELEMENTARY SCIENCE EDUCATION	3 s h
Introduction to anatomy and life processes of plant cells tissues, and organs Consideration to selected algae, bacteria fungi mosses, ferns and their allies and seed plants Recognition of groups of local plants, their economic importance and health implications are emphasized Lab studies will include practical uses of plants (Schrock)		
ES 664	ZOOLOGY IN ELEMENTARY SCIENCE EDUCATION	3 s h
A lab and field study which surveys principles and theory of zoological taxonomy and study of representative invertebrate and vertebrate taxa Emphasis on freshwater and terrestrial forms which may be observed or collected in Western Pennsylvania Homologous structures are compared and their functions are studied Principles of embryology, genetics and animal behavior are introduced (Meritt)		
ES 666	CONSERVATION IN ELEMENTARY SCIENCE EDUCATION	3 s h
A new concept in conservation-corrective and preventive conservation for man's survival Problems of pollution and population are central theme Field work is required. (Ferrence or Hue)		
ES 674	METEOROLOGY IN ELEMENTARY SCIENCE EDUCATION	3 s h
A descriptive analysis of fundamentals of weather, including composition and structure of atmosphere, radiation heat budget cloud and rain physics, circulation patterns, storm structures, air pollution, and biometeorology Familiarization with weather instruments, maps and records, as well as activities applicable to elementary science (Prince)		
ES 680	ASTRONOMY IN ELEMENTARY SCIENCE EDUCATION	3 s h
A descriptive and qualitative study of stellar and solar system astronomy including telescopes and space travel at a level adaptable to the elementary school classroom and techniques for their presentation Three hours lecture and/or lab (Sutton)		
ES 688	FIELD NATURAL HISTORY OF WESTERN PA.	3 s h
Bus and automobile travel throughout Western Pennsylvania Places of interest in ecology, geology, conservation, and nature study will be visited Offered in pre- or post-session only Travel may require the student to be away from campus for several days at a time. A travel assessment based upon needs will be made (Ferrence)		
ES 692	ELEMENTARY SCIENCE CURRICULUM	3 s h
Various approaches to teaching of elementary science and bases for these approaches New curricula being used in elementary schools will be examined and critiqued (Moore)		

SOCIAL SCIENCE

MASTER OF EDUCATION IN SOCIAL SCIENCE

The Master of Education degree in Social Science is designed to give secondary teachers greater depth and competency in the subject matter, methodology and research techniques of the social sciences.

Each student admitted to The Graduate School will be assigned an adviser in the Social Science Division. All courses must be approved by that adviser

Students working for this degree have two options for completing the program: (1) 30 s.h. of work in accordance with the MEd program description on page 38; (2) 36 s.h. of work with no thesis. Courses in subject matter concentration must be elected in three of five social sciences (Economics, Geography, History, Political Science, Sociology/Anthropology). See course listings in this catalog under each of those headings.

COURSE DESCRIPTIONS

SS 581	SPECIAL TOPICS: FOREIGN STUDY	1-6 s.h.
Directed foreign study that involves travel and observation outside the United States. Areas visited and itineraries vary from year to year. Background reading, lectures and briefings, diary or evaluative paper. In recent years, Argentina, India, the Soviet Union and countries of Western Europe have been tour destinations. For details on projected tours direct inquiries to Director, Center for International Studies.		
SS 610	NEW APPROACHES IN SOCIAL SCIENCE INSTRUCTION	3 s.h.
Develop innovative curriculum materials by applying concepts from the latest research in the behavioral and social sciences. Plan strategies for use of such materials in the classroom. Explore the methods available for analyzing the teaching process.		
SS 614	RESEARCH METHODOLOGIES IN THE SOCIAL SCIENCE	3 s.h.
Techniques of locating and using source materials, evaluation of evidence, organization of tested data, and exposition of tested data according to approved forms are discussed. Methodologies of value to students in various disciplines of social sciences are explored.		
SS 680	SOCIAL SCIENCE SEMINAR	3 s.h.
Research in methodology of social science in the secondary schools. Restricted to MEd candidates. Prerequisite: GR 615.		
SS 699	INDEPENDENT STUDY	1-3 s.h.
Independent research and study under faculty direction. Interested students should apply to director of graduate studies.		

SOCIOLOGY

Sociology is the study of society and human social relationships. Advanced training in sociology should enable the student to think critically and reflectively about the social world and to be able to use the knowledge acquired in a variety of ways: Sociology is relevant to a number of careers. Many students plan to affiliate themselves with professional social service, governmental, or research organizations, while other students pursue academic sociological careers. The MA program in Sociology is designed to serve these various needs and interests of students.

MASTER OF ARTS IN SOCIOLOGY

In addition to graduate school admission requirements, the student should have completed at least 12 hours of undergraduate sociology courses with an average grade of B or better. In individual cases the department may allow a promising student to enter the program with deficiencies. Such deficiencies must be made up by taking specific courses at the discretion of the department in addition to the required total number of course hours.

All MA students are required to complete the two basic core requirements: SO 664 Research Seminar in Sociology, and SO 667 Contemporary Sociological Theory. Beyond the completion of these two courses, the MA in Sociology allows the student two options:

Thesis Option: In addition to the two core courses, students will complete an additional 18 s.h. of coursework (12 s.h. of which must be in sociology) and a six s.h. thesis (SO 850).

Non-Thesis Option: In addition to the two core courses, students will complete an additional 30 s.h. of coursework (21 s.h. of which must be in sociology).

Students planning further academic work in sociology may find the thesis option most helpful, while those going on to community-related work might find the non-thesis option most beneficial. Specific programs of study are planned by student and assigned faculty adviser when the student enters the program. Students may later alter their program of studies in consultation with their advisers. Such flexibility in structuring the curriculum, we believe, will best serve students.

No more than one-third of a student's work toward the MA may be in dual-level (500) courses. Therefore, those selecting the thesis option are limited to nine s.h. of dual-level coursework, while those selecting the non-thesis option will be permitted no more than 12 s.h. of dual-level coursework. Furthermore, students who enrolled for dual-level courses while undergraduates at IUP may not repeat the same courses for credit as graduate students.

For description of GR courses, see entry under "GENERAL SERVICE COURSES," page 41.

COURSE DESCRIPTIONS

SO 522 CULTURE AND PERSONALITY 3 s.h.

Study of personality traits unique to prescribed cultural or institutional settings. Subject matter includes socialization, emotional expression, kinesics, deviant roles, cultural aspects of mental disturbance, and value orientation. Some attention given to research methods employed in the discipline.

SO 534 POPULATION PROBLEMS 3 s.h.

Major forces of population change examined. Problems of excessive population growth rates outside of U.S. and declining growth rates in U.S. analyzed. Threats to ecological stability discussed.

SO 542	SOCIAL AND CULTURAL ASPECTS OF HEALTH AND MEDICINE	3 s.h.
	Review of fields of medical sociology and anthropology: Focuses on such topics as social background of illness, folk medicine, cultural differences in perceptions of health, and social organization of health facilities.	
SO 543	DEVELOPMENT OF SOCIAL THEORY	3 s.h.
	Examination of historical development of social theory with special attention to the classical theorists and theoretical ideas which have contributed most significantly to modern sociology.	
SO 557	SOCIOLOGY OF AGING	3 s.h.
	Introduction to various problems faced in the process of growing older. Attitudes of society toward elderly and social and cultural impact of an aging U.S. population examined	
SO 559	THE DEVELOPMENT OF SOCIAL SERVICES	3 s.h.
	Examination of genesis and implementation of health, welfare, and employment policy with particular reference to who benefits from such policy and who does not.	
SO 581	SPECIAL TOPICS. SEMINAR IN SOCIOLOGY	3-6 s.h.
	See SO 681 for course description	
SO 654	SOCIAL INEQUALITY	3 s.h.
	Examines central theoretical perspectives on inequality. Considers such topics as nature of social classes and inequality in the U.S., characteristics of working class, poor, and super-rich, and sexual inequality.	
SO 656	SOCIAL CHANGE	3 s.h.
	Explores nature and consequences of social change, types of changes individuals might want in U.S. and how these might be implemented. Also discusses lessons to be learned from various social change efforts.	
SO 660	SOCIOLOGY OF POWER	3 s.h.
	Examines social power of groups and classes with particular emphasis on the sources of power and the ways in which power is exerted.	
SO 662	THE SOCIOLOGY OF DEVIANCE	3 s.h.
	Relationship between individual deviance and social and cultural factors examined. How different groups set limits for acceptable behavior analyzed in comparative and historical context.	
SO 663	ISSUES IN RACIAL INEQUALITY	3 s.h.
	Focuses on current situation of minorities in U.S. Efforts to improve conditions for minorities in employment, housing, education, and police protection receive special attention	
SO 664	RESEARCH SEMINAR IN SOCIOLOGY	3 s.h.
	Examination of diverse research designs in the social sciences. Focuses on understanding and critique of designs and on integration of theory and research. Special attention given to development of thesis proposal. Required for MA in Sociology.	
SO 667	CONTEMPORARY SOCIOLOGICAL THEORY	3 s.h.
	Examination of major systems of sociological theory and major theoretical controversies vying for attention in contemporary sociology. Emphasis given to theories in macrosociology, especially functionalism, neo-Marxian conflict theory, and societal evolutionism. Required for MA in Sociology.	

SO 674	COMPARATIVE URBAN STUDIES	3 s.h.
Reviews sociological analysis of urbanism and urbanization. Growth and problems of cities investigated and comparative approach stressed throughout. Various research methods and theoretical orientations considered.		
SO 676	COMPARATIVE MACROSOCIOLOGY	3 s.h.
Detailed comparative analysis of major institutional features of entire range of human societies, from band and tribal, through agrarian, to industrial societies. Course organized in an historical or evolutionary framework. Seeks basic theoretical understanding of forces responsible for organization and transformation of human societies.		
SO 681-		
581	SPECIAL TOPICS SEMINAR IN SOCIOLOGY	3-6 s.h.
Seminar focuses on specialized areas in the discipline not covered by regular courses. Students will do extensive reading in the area. Course may be repeated under different subtitles.		
SO 690	READINGS IN SOCIOLOGY	3 s.h.
Students report and develop extensive bibliographies on assigned readings for depth understanding of a specific sociological concept, process, or problem.		
SO 699	INDEPENDENT STUDY IN SOCIOLOGY	1-3 s.h.
Students wishing to specialize beyond course-work are encouraged to work on a one-to-one basis with faculty members in independent study. Students may elect up to a total of six s.h. of independent study		

SPECIAL EDUCATION AND CLINICAL SERVICES

This Department offers a graduate program leading to the Master of Education Degree in Education of Exceptional Children or in Speech Pathology. The Department also offers the Master of Science degree in Exceptionality or in Speech Pathology. A graduate level of competency in these major areas is in accord with national standards now emphasized by professional organizations such as the Council for Exceptional Children and the American Speech and Hearing Association.

The MEd degree requires a course in Foundations of Education and practicum experiences in appropriate settings. The Master of Science degree is based upon an individual program which integrates academic as well as practicum experience with selected community agencies. For details on the supervisory certificate, applicants should contact the department chairperson.

MASTER OF EDUCATION IN EDUCATION OF EXCEPTIONAL CHILDREN

This graduate program offers majors Master of Education options in one of the following areas of concentration: (1) Mentally Retarded, (2) Emotionally Disturbed, (3) Learning Disabled, (4) Gifted/Talented. As a prerequisite for completion of the MEd degree, the first three major options require Pennsylvania comprehensive teaching certification in Education of Mentally and/or Physically Handicapped. Candidates with teaching certification in other fields will be required to complete additional semester hours toward such certification, depending on individual background. The fourth concentration area requires Pennsylvania teaching certification in an elementary or secondary field.

All four concentration areas require nine s.h. in Professional Development selected from the approved list, including three s.h. in Foundations of Education, three s.h. selected from the course list in Behavioral Studies, and three s.h. in Research (GR 615). All four concentration areas also require six s.h. in Specialization Core, including EX 640 for the first three areas, as well as the specialization courses in each area: EX 623 for the Mentally Retarded, EX 665 for the Emotionally Disturbed, EX 666 for the Learning Disabled, and EX 664 for the Gifted/Talented.

All four concentration areas require a minimum of 21 s.h. in Subject Area course work unless the thesis option is selected. Advisement is required for course selection, and workshops are not to be considered applicable for degree requirements.

For description of GR courses, see entry under "GENERAL SERVICE COURSES," page 41.

MASTER OF SCIENCE IN EXCEPTIONALITY

Professional training is provided for those who wish to gain competencies for working with mentally and/or physically handicapped adults and their families in the community or in various agencies and organizations. Adviser recommendation should be obtained prior to enrollment. Course selection and degree candidacy is based upon individual background and employment goals. Candidates for the Master of Science degree will select a minimum of 21 s.h. in Subject Matter Concentration including six s.h. in EX 685 Practicum, EX 522, EX 630, EX 631, and PC 640 or EX 645. They will also complete a minimum of three s.h. in GR 615 Elements of Research as well as three to six hours of Interrelated Study selected according to student needs.

For description of PC course, see section on PSYCHOLOGY.

For description of GR courses, see entry under "GENERAL SERVICE COURSES," page 41.

COURSE DESCRIPTIONS

**EX 500 EDUCATION OF EXCEPTIONAL CHILDREN
IN REGULAR CLASSES**

3 s.h.

Intended for graduate students who are teaching regular classes, and other school personnel who do not have a background of formal course work in the general area of exceptionality. Included will be specific vocabulary and etiology of handicapping conditions as they relate to regular class teachers in understanding the nature of problems. Concepts of mainstreaming and resource room teaching will be included

**EX 524 LEARNING DISABILITIES AND THE
LANGUAGE PROCESSES**

3 s.h.

Designed for students pursuing the concentration in learning disabilities. Skills are taught to help the student evaluate learning disabled children, with a major emphasis on language processes.

EX 530 PHYSICAL DISABILITIES AND PSYCHOLOGICAL HANDICAPS 3 s.h.

Principles and practices in rehabilitation, with attention to contributions of teachers, counselors, nurses, social workers, psychologists, speech therapists, and other professional workers.

**EX 557 SEVERE AND PROFOUND RETARDED AND
MULTIDISABILITIES**

3 s.h.

An analysis of curriculum and program content for the trainable mentally retarded ranging from preschool age to adult ages. Directed toward students and teachers who plan to teach the retarded in public schools, institutional facilities, and/or sheltered workshops.

EX 564 PRESCHOOL EDUCATION OF THE HANDICAPPED

3 s.h.

Development of intervention strategies, assessment of prescriptive planning for, and curricular programs for the preschool aged handicapped child from infancy to five years of age. Prepares needed teachers for preschool programs for the handicapped. Satisfies state and federal priorities where the emphasis is being placed for the education of preschool handicapped.

EX 580 SELECTED PROBLEMS AND RESEARCH

1-3 s.h.

Students will review critically recent developments in the field. Opportunity is afforded for independent readings and limited research reports. A student may identify a topic for subsequent development as his/her thesis or research project. Prerequisites: EX 631, EX 639, EX 640.

EX 599 INDEPENDENT STUDY IN SPECIAL EDUCATION

1-3 s.h.

Individual students develop research studies in consultation with a faculty member. Departmental consent required.

EX 623 CURRICULUM AND METHODS

3 s.h.

Designed to provide an in-depth understanding of current curriculum levels for all retarded students. Curriculum guides are evaluated and analyzed in relation to present and future programs. Some consideration to subject matter at elementary and secondary levels, relationship between academic subjects and vocational skills; emphasis on clinical and diagnostic approach in curriculum design.

**EX 625 VOCATIONAL AND CAREER OPPORTUNITIES
FOR THE HANDICAPPED**

3 s.h.

Designed to develop competencies in the area of pre-vocational and vocational education of the handicapped. A review of career and occupational alternatives for the handicapped, as well as techniques and skills required for obtaining and maintaining employment.

- EX 630 ORGANIZATION AND ADMINISTRATION OF PROGRAMS FOR EXCEPTIONAL CHILDREN 3 s.h.
Principles, practices, and problems of administration and supervision as they relate to developing and maintaining special education programs. Criteria are analyzed for use in evaluation of local programs. Functions of administrators and supervisors in school systems are compared according to rural, urban, or statewide responsibilities. Prerequisites: EX 623, 640. (Required for administrators and supervisors.)
- EX 631 PSYCHOLOGY EXCEPTIONAL CHILDREN AND YOUTH 3 s.h.
Designed as a basic course in the psychosocial and psychoeducational adjustment of exceptional individuals. Consideration given to general needs and assessment of all exceptional persons as well as to specific needs of those with unique mental and/or physical conditions.
- EX 632 GUIDANCE AND ADJUSTMENT FOR THE EXCEPTIONAL 3 s.h.
Home, school, and community influences are analyzed in family adjustment to the presence of an exceptional child. Family reactions are considered in behavioral differences among children with various degrees of exceptionailities. Emphasis to guidance skills and knowledges needed by teachers and other professional workers in field of exceptionality.
- EX 638 PSYCHOLOGY OF THE GIFTED CHILD 3 s.h.
Characteristics of the bright, fast-learning child along with implications for education. Emphasis to measurement techniques, motivational factors, and personality dynamics.
- EX 639 PSYCHOLOGY OF THE MENTALLY RETARDED 3 s.h.
Characteristics of the mentally retarded are analyzed with applications for educational, vocational and personal adjustment. The various levels of mental retardation are considered in relation to etiology, learning and behavior, development, measurement, social factors, and interpersonal and family relations. Consideration given to changing outlook and recent trends in the field.
- EX 640 DIAGNOSTIC TECHNIQUES IN SPECIAL EDUCATION 3 s.h.
Diagnostic procedures and appropriate test materials are selected for use in assessment of pupils with mental, physical, emotional, and learning disabilities. Observations and demonstrations, reporting and interpreting results of diagnostic procedures are integrated with remedial or developmental recommendations in individual case studies. Prerequisites: EX 631, EX 639.
- EX 641 INTERPRETATION OF RESULTS OF PSYCHOLOGICAL TESTS 3 s.h.
Results of psychometric tests are analyzed and interpreted. Various standardized psychological instruments and test batteries are considered in the light of their purpose and usage. Both individual and group test results are examined.
- EX 645 COMMUNITY AND AGENCY PLANNING FOR THE EXCEPTIONAL 3 s.h.
Selected professional, governmental and community organizations are studied for their contributions to comprehensive planning toward educational, personal-social, and occupational adjustments. Social, educational, economic, and cultural aspects are analyzed.

EX 664 CURRICULUM PLANNING FOR THE GIFTED/TALENTED 3 s.h.

Utilization of existing hierachal presentations to aid with curricular decision-making by teachers, supervisors, and administrators for the gifted/talented, nursery school through twelfth grade. Emphasis on four major areas: social studies, mathematics and science, language arts, and creative arts. Considerations for integrating other disciplines and for going beyond the scope of the course will be presented. Prerequisite. EX 638 Psychology of the Gifted.

**EX 665 EDUCATION OF CHILDREN WITH SOCIAL AND
EMOTIONAL MALADJUSTMENTS 3 s.h.**

Examines reactions of children in the schools who deviate in their emotional or social behavior. Consideration is given to children who habitually exhibit overcontrolled, undercontrolled, or immature reactions. Identification, characteristics, educational provisions, and preventive measures are emphasized.

**EX 666 EDUCATION OF CHILDREN WITH
LEARNING DISABILITIES 3 s.h.**

Emphasizes curriculum and remedial instruction for children with special learning disabilities who exhibit a disorder in one or more of the basic psychological processes involved in understanding or in using spoken or written language. These may be manifested in disorders of listening, thinking, talking, reading, writing, spelling, or in arithmetic.

EX 685 PRACTICUM AND INTERNSHIP 3-9 s.h.

Advanced students are offered guided practicum experiences in selected schools, residential institutions, clinics, or agencies. Internship or supervised student teaching is planned individually. Students analyze, evaluate, and report on their experiences.

SPEECH-LANGUAGE PATHOLOGY

The Speech-Language Pathology program culminates in either a Master of Science or a Master of Education degree. A minimum of 36 s.h. is required for either degree. The program provides for the completion of the academic and practicum requirements for the Certificate of Clinical Competence from the American Speech-Language-Hearing Association. Those students who have not completed an undergraduate major comparable to that offered by IUP in the discipline may be provisionally admitted and, upon completion of the deficiencies, may apply for full graduate status. Workshops are not to be considered applicable for degree requirements. The thesis option is available with either degree and requires approval of the adviser.

MASTER OF EDUCATION IN SPEECH-LANGUAGE PATHOLOGY

Candidates for the Master of Education degree will choose nine s.h. in Professional Development, a Specialization Core of six s.h. (SH 624 and SH 645), and a minimum of 21 hours of Subject Matter Concentration including SH 610, SH 650, SH 661, SH 662, SH 663, and SH 681. The coursework in the Professional Development sequence must receive approval of the adviser.

MASTER OF SCIENCE IN SPEECH-LANGUAGE PATHOLOGY

Candidates for the Master of Science degree will select a minimum of 24 s.h. in the Subject Matter Concentration including SH 610, SH 630, SH 640, SH 650, SH 661, SH 662, SH 663, and SH 681. They will also complete three to six s.h. of research and register for one elective (3 s.h.) approved by the adviser.

COURSE DESCRIPTIONS

SH 512 CLEFT PALATE

3 s.h.

Problems associated with phenomenon of cleft lip and palate with special emphasis in areas of speech, hearing, and language. Included in course will be human embryology; physical remediation; the effects of clefts on structure and function of speech and hearing mechanism; role of speech correctionist on the cleft palate team.

SH 604 DIAGNOSTIC METHODS

3 s.h.

Evaluation of tests and techniques of diagnosis of speech and language disorders; interpretation of results and planning appropriate subsequent case management. Interviewing techniques appropriate to case history taking. Writing of diagnostic and case-history reports.

SH 610 ARTICULATION

3 s.h.

Linguistic approach to articulatory process and analysis of misarticulation as symptoms of language dysfunction; variables related to articulatory mastery; programmed, traditional, and sensory-motor methods of modifying articulatory behavior.

SH 614 NEUROPATHOLOGIES OF SPEECH

3 s.h.

Investigation of symptoms and etiologies associated with deviant neural transmission and muscular contraction. Examination of diagnostic techniques employed in neuromuscular conditions resulting from palsies, progressive degenerative diseases, dysarthrias, tumors, and paralytic or paretic involvement. Emphasis on treatment approaches.

SH 616 STUTTERING

3 s.h.

Nature and causes of stuttering. Emphasis on diagnosis and management. Counseling and learning theory application as two main approaches to treatment. Consideration of the person as a stutterer. Review of pertinent and recent research topics.

SH 618 VOICE

3 s.h.

Scientific principles of voice production and modification with emphasis on physiology, pathologies, or malfunctioning which produce voice defects; relationship between disorders of voice and personality; diagnostic and therapeutic considerations for both organic and psychogenic disorders, including the laryngectomized.

SH 624 PRINCIPLES OF SPEECH-LANGUAGE PATHOLOGY IN THE SCHOOLS

3 s.h.

Advanced study of legal and social factors affecting service delivery in the public schools. Models of service delivery for classroom and individual programs. Models of supervision for staff, paraprofessionals, and trainees.

SH 630 LANGUAGE DISORDERS OF CHILDREN

3 s.h.

Anatomical, physiological, psychological, neurological and environmental factors related to language delay or disordered language acquisition. An inventory of language skills and means of fostering their development or compensating for inadequacies; a holistic vs. specific approach to programs of remediation.

SH 631 SEMINAR IN LANGUAGE ACQUISITION

3 s.h.

Advanced study of the processes and sequences of normal language acquisition. Special emphasis placed upon a comprehensive review of recent theories and research related to cognitive-perceptual and social-pragmatic variables. Trends in language acquisition will be studied in relationship to other developmental sequences.

SH 632	APHASIA	3 s.h.
Consideration of language, speech and related problems resulting from neurological insult. Neurological functioning and dysfunctioning will be highlighted. Diagnosis and management of persons with aphasia, agnosias, or apraxias will be emphasized. Role of family in rehabilitation and family counseling.		
SH 635	SEMINAR IN COMMUNICATION	1-3 s.h.
Intensive study of one or more areas of speech science, speech and language pathology, or audiology. Topics vary to meet the student's needs and interests. Course may be repeated for credit with a change in area considered. Prerequisite: Speech-Language Pathology major, admission to degree candidacy, and adviser approval.		
SH 640	DIAGNOSTIC AUDIOLOGY	3 s.h.
Identification and description of types of hearing impairment by standard audiometric procedures including pure tone, speech, and site of lesion batteries. Testing of special populations as well as evaluation for fitting of amplification.		
SH 645	PEDIATRIC AUDIOLOGY	3 s.h.
Study of audiological procedures used from infancy through adolescence. Special emphasis on evoked response audiometry, impedance audiometry/tympanometry, and behavioral procedures in addition to standard audiological procedures. Interpretation of findings on children and its effect upon medical referral, classroom placement, and prosthetic or educational modifications.		
SH 650	ADVANCED SPEECH SCIENCE	3 s.h.
Physiologic, acoustic, and perceptual characteristics of speech with special emphasis on speech monitoring and controls. Major lab instrumentation and research techniques in current use are described and demonstrated. Status of present knowledge is summarized and discussed.		
SH 661	ADVANCED CLINICAL PRACTICUM I	2-6 s.h.
Supervised practicum experience in the University Speech and Hearing Clinic with individuals exhibiting speech, language, and/or hearing dysfunction. Planning and carrying on of programs of therapy plus interviewing, diagnosing, counseling, and report writing.		
SH 662	DIAGNOSTIC CLINIC	1 s.h.
Supervised practicum experience in performing in-depth diagnostic evaluations with individuals exhibiting any type of speech, hearing, or language dysfunction. Experience in taking case histories, conferring with parents, and report writing.		
SH 663	HEARING TESTING CLINIC	1 s.h.
Supervised practicum experience in performing diagnostic audiological tests.		
SH 681	ADVANCED CLINICAL PRACTICUM II	2-6 s.h.
Similar to SH 661; students assume more responsibility, and experience may be done at approved off-campus sites.		
SH 850	THESIS	3 s.h.

THEATER

The Theater Department does not offer a graduate degree program.

TH 586 PRACTICUM IN PRODUCTION

1-6 s.h.

An opportunity with academic credit for students to make significant contributions to campus productions augmenting theater course work in the areas of assistant directing or directing, stage management, technical direction, sound design, lighting, costuming, scene design, properties and set decoration, scene building and painting and make-up design. May be repeated for a maximum of six credits. Prerequisite: by permission.

TH 588 SUMMER THEATER WORKSHOP

3-9 s.h.

A practicum offering experience in all major aspects of production by combining class work with participation in *Theater-by-the-Grove*, IUP's repertory theater.





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TELEPHONE NUMBERS

If you have a question concerning a specific graduate program at IUP, please contact the department chairperson. Telephone numbers are listed below for your convenience. The area code for IUP is 412.

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